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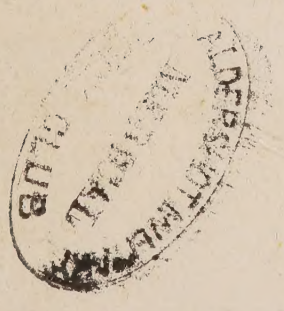

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PRINCIPLES OF PATHOLOGY,

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PRACTICE OF PHYSIC.

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BY

JOHN MACKINTOSH, M. D.

LECTURER ON THE PRACTICE OF PHYSIC IN EDINBURGH,

&c. &c. &c.

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CONTENTS OF VOL. II.

Page

PART IV.—DISEASES OF THE CIRCULATING SYSTEM.

CHAP. I.—GENERAL REMARKS, . . . 3
CHAP. II.—PALPITATION, &c. . . . 14
Angina Pectoris, ... 16
Appearances on Dissection, and Pathological Remarks, 20
Treatment, ... 22
CHAP. III.—PERICARDITIS AND CARDITIS, . 24
Appearances on Dissection, . . . 28
Treatment, ... 30
Carditis, ... 31
Appearances on Dissection, . . ib.
Treatment, ... 33
CHAP. IV.—HYPERTROPHY OF THE HEART, . 34
Stethoscopic Signs of Hypertrophy of the Left Ventricle, ... 36
Stethoscopic Signs of Hypertrophy of the Right Ventricle, ... ib
Treatment of Hypertrophy of the Heart, . 38
CHAP. V.—DILATATION OF THE HEART, . . 42
Stethoscopic Signs of Dilatation of Left Ventricle, 46
Stethoscopic Signs of Dilatation of Right Ventricle, ib.
Tuberculous Formation, . . . 47
Atrophy of the Heart, . . . 48
Rupture of the Heart, . . . 49

Page

CHAP. VI.—Diseases of the Valves, . . 51
Appearances on Dissection, . . ib.
Symptoms, ... 52
Stethoscopic Signs of Diseases of the Valves, . 53
Treatment, ... 55
CHAP. VII.—Diseases of the Blood-Vessels, . 56
Ossification of the Arteries, . . . 59
Aneurism, ... 60
Treatment, ... 64
Inflammation of Veins, . . . 65
Symptoms, ... ib.
Phlegmasia Dolens, . . . 67
Pathological Observations, . . 69
Treatment, ... 71
Chap. VIII.—Plethora and Exsanguinity, . 73
Plethora, ... ib.
Causes, ... 74
Treatment, ... ib.
Exsanguinity, ... 75
Treatment, ... 78
CHAP. IX.—Cyanosis or Blue Skin, . . 79
Symptoms, ... ib.
Pathological Opinions, . . . ib.
Treatment, ... 80

PART V.—DISEASES OF THE BRAIN, AND OTHER PARTS OF THE NERVOUS SYSTEM.

Chap. I.—General Remarks on Diseases of the Brain, &c. 84
Chap. II.—Inflammation of the Membranes of the Brain as it occurs in Adults.—Inflammation of the Brain, which terminates in Suppuration and Ramollissement—Inflammation of the Membranes of the Brain as the Disease occurs in Young Subjects, commonly called Hydrocephalus, . 101
Inflammation of the Membranes as it occurs in Adults, ib.
Phenomena, ... 102
Causes, ... 107
Appearances on Dissection, . . 108
Treatment, ... 111

Page

Inflammation of the Substance of the Brain, . 118
Symptoms, ... ib.
Causes, ... 123
Appearances on Dissection, . . ib.
Treatment, ... 126
Acute Hydrocephalus, . . . 129
Appearances on Dissection, . . 131
Pathological Remarks, . . . ib.
Treatment, ... 136
Chronic Hydrocephalus, . . . ib.
Appearances on Dissection, . . 139
Treatment, ... 140
Chap. III.—Diseases of the Spinal Marrow, . 142
Inflammation of the Spinal Marrow and its Membranes, ib.
Symptoms, ... ib.
Causes, ... 144
Appearances on Dissection, . . ib.
Treatment, ... ib.
Tetanus, ... 145
Symptoms, ... ib.
Causes, ... 147
Appearances on Dissection, . . ib.
Treatment, ... 148
Trismus Nascentium, . . . 149
Hydrophobia, . . . 150
Symptoms, ... 151
Appearances on Dissection, . . 152
Treatment, ... 153
Chap. IV.—Epilepsy—Hysteria—Chorea—and Neuralgic Pains, . . . 154
Epilepsy, ... ib.
Symptoms, ... ib.
Causes, ... 155
Appearances on Dissection, . . 156
Treatment, ... ib.
Hysteria, ... 159
Symptoms, ... 160
Causes, ... ib.
Treatment, ... 161

Page

Chorea, ... 161
Causes, ... 162
Treatment, ... 163
Neuralgic Pains, ... ib.
Causes, ... 164
Treatment, ... ib.
CHAP. V.—APOPLEXY AND PARALYSIS, . . 167
Apoplexy, ... ib.
Symptoms, ... ib.
Causes, ... 170
Appearances on Dissection, . . ib.
Treatment, ... 172
Paralysis, ... 173
Symptoms, ... 174
Causes, ... 176
Treatment, ... ib.
CHAP. VI.—INSANITY—HYPOCHONDRIASIS—AND DELIRIUM TREMENS, ... 179
Insanity, ... ib.
Causes, ... 182
Appearances on Dissection, . . . 183
Treatment, ... 186
Hypochondriasis, ... 192
Causes, ... 193
Treatment, ... 194
Delirium Tremens, ... ib.

PART VI.—DISEASES OF THE EYE AND EAR, 197
CHAP. I.—GENERAL REMARKS ON DISEASES OF THE EYE, ib.
Symptoms of Ophthalmic Inflammation, . 201
Causes of Ophthalmic Inflammation, . . 202
Treatment of Ophthalmic Inflammation, . 204
CHAP. II.—INFLAMMATION OF THE CONJUNCTIVA, . 210
Simple Inflammation of the external covering of the Eye, ib.
Symptoms, ... ib.
Treatment, ... 211
Simple Catarrhal Ophthalmia, . . . 212
Symptoms, ... ib.
Treatment, ... 213

Page

Purulent Ophthalmia of Infants, . . 215
Symptoms, ... ib.
Causes, ... 218
Treatment, ... ib.
Pustular Ophthalmia, . . . 222
Treatment, ... 223
CHAP. III.—Inflammation of the Eye-Ball, . 224
Inflammation of the Sclerotic Coat, . . ib.
Inflammation of the Iris, . . . 225
Causes, ... 226
Treatment, ... 227
Amaurosis, ... 229
Causes, ... ib.
Symptoms, ... 230
Treatment, ... 231
CHAP. IV.—Diseases of the Ear, . . 234
Otitis, ... ib.
Causes, ... 235
Treatment, ... 236
Ottorrhœa, ... 237

PART VII.—DISEASES OF THE SKIN, . 241
Chap. I.—General Remarks on Diseases of the Skin, ib.
Classification of Diseases of the Skin, . . 244
Chap. II.—Erysipelas, . . . 245
Symptoms, ... 246
Causes, ... 248
Appearances on Dissection, . . . 252
Pathological Remarks, . . . 257
Treatment, ... 265
Chap. III.—Papular Diseases, . . . 273
Strofulus, ... ib.
Treatment, ... 274
Lichen, ... ib.
Treatment, ... ib.
Prurigo, ... 275
Treatment, ... ib.
Chap. IV.—Pustular Diseases, . . 276
Impetigo, ... ib.
Causes, ... 277
Treatment, ... ib.

Page

Porrigo, ... 278
Treatment, ... 280
Scabies, or Itch, ... 285
Causes, ... ib.
Treatment, ... ib.
Ecthyma and Rupia, ... 286
Causes, ... ib.
Pathology, ... 287
Treatment, ... ib.
Acne, ... ib.
Causes, ... 288
Treatment, ... ib.
Sycosis, ... 289
Treatment, ... ib.
Chap. V.—Squamous Diseases, . . . 290
Lepra, ... ib.
Causes, ... 292
Treatment, ... ib.
Psoriasis, ... 295
Treatment, ... 297
Pityriasis, ... ib.
Causes, ... 298
Treatment, ... ib.
Chap. VI.—Vesicular Diseases, . . . 300
Herpes, ... ib.
Causes, ... 301
Treatment, ... 302
Pemphigus and Pompholyx, . . . ib.
Chap. VII.—Purpura, ... 304
Causes, ... 315
Appearances on Dissection, . . . 316
Pathology, ... 318
Treatment, ... 319
Exudation of Blood from the Surface, without Abrasion of the Cuticle, commonly called "Bloody Sweat," 322

PART VIII.—DISEASES OF THE URINARY AND GENITAL ORGANS, . . . 325
Chap. I.—Inflammation of the Urethra, Bladder, and Kidneys, ... ib.

Page

Inflammation of the Urethra, . . . 325
Symptoms, ... ib.
Appearances on Dissection, . . . 328
Treatment, ... ib.
Inflammation of the Mucous Membrane of the Bladder, 332
Causes, ... 333
Treatment, ... 334
Inflammation of the Kidney, . . . ib.
Symptoms, ... 335
Treatment, ... 336
Chap. II.—Calculus in Kidneys, Bladder, and other Parts of the Urinary Passages, . . 338
Chemical characters of Urinary Calculi, . ib.
Calculus in the Kidney, . . . 341
Symptoms, ... ib.
Treatment, ... 343
Calculus in the Bladder, . . . ib.
Symptoms, ... ib.
Treatment, ... 344
Calculus in the Urethra, . . . 345
Calculus embedded in the Prostate, . . ib.
Chap. III.—Suppression of Urine, Retention of Urine, Incontinence of Urine, . . 346
Suppression of Urine, . . . ib.
Treatment, ... 349
Retention of Urine, . . . 350
Treatment, ... 351
Incontinence of Urine, . . . 352
Chap. IV.—Hœmaturia, or Discharge of Blood from the Urinary Passages, . . . 355
Treatment, ... ib.
Chap. V.—Diabetes, . . . 356
Symptoms, ... 357
Appearances on Dissection, . . . 358
Causes, ... 359
Pathology, ... 360
Treatment, ... 364
Chap. VI.—Syphilis, . . . 367
Symptoms, ... ib.
Treatment, ... 370

Page

CHAP. VII.—DISEASES OF THE LABIA, AND EXTERNAL PARTS IN THE FEMALE, . . . 381
Phlegmon, ... ib.
Symptoms, ... ib.
Treatment, ... ib.
Peculiar Affection of the Pudendum, occurring in Young Subjects, ... 382
Treatment, ... 385
CHAP. VIII.—INFLAMMATION OF THE TESTES, . . 386
Treatment, ... ib.
CHAP. IX.—DISEASES OF THE UTERUS, CONNECTED WITH INFLAMMATORY ACTION, . . . 388
Inflammation of the Uterus after delivery, . ib.
Inflammation of the Os and Cervix Uteri in the ordinary state of the System, . . . 391
Treatment, ... 392
Vascular Sarcoma of the Uterus, . . 393
Treatment, ... 394
Scirrhus and Cancer of the Uterus, . . 396
Treatment, ... 397
CHAP. X.—PROLAPSUS OF THE UTERUS—RETROVERSION OF THE UTERUS—POLYPUS OF THE VAGINA AND UTERUS, 400
Prolapsus of the Uterus, . . . ib.
Causes, ... ib.
Treatment, ... 401
Retroversion of the Uterus. . . . ib.
Causes, ... ib.
Treatment, ... 402
Polypous Tumours of the Vagina and Uterus, . 403
Treatment, ... 406
CHAP. XI.—TUBERCLES OF THE UTERUS—BONY CONCRETIONS—HYDATIDS—AQUEOUS AND FLATULENT DISCHARGES, ... 407
Tubercles of the Uterus, . . . ib.
Treatment, ... 408
Bony Concretions, . . . ib.
Treatment, ... 410
Hydatids, ... ib.
Aqueous and Flatulent Discharges, . . 411
CHAP. XII.—FLUOR ALBUS AND LEUCORRHŒA, . 413

Page

Symptoms, ... 413
Causes, ... 414
Treatment, ... 415
Chap. XIII.—Diseases of Menstruation, . 418
Amenorrhœa, ... ib.
Retention of the Menses, ... ib.
Causes, ... 420
Treatment, ... ib.
Suppression of the Menses, . . . 426
Treatment, ... 427
Dysmenorrhœa, or Painful and Difficult Menstruation, 428
Pathological Remarks, . . . 431
Treatment, ... 433
Immoderate Flow of the Menses, . . 436
Treatment, ... 437
Menorrhagia, ... ib.
Causes, ... 438
Treatment, ... 439
Cessation of the Menses, . . . 445
Treatment, ... 446
Chap. XIV.—Diseases of the Ovaria, . . 448
Symptoms, ... 450
Treatment, ... 452

PART IX.—GOUT—RHEUMATISM—SCROFULA—DROPSY, ... 461
Chap. I.—Gout, ... 463
Phenomena of a Paroxysm of Regular Gout, . 465
Phenomena of Chronic Gout, . . . 471
Phenomena of Retrocedent Gout, . . 473
Causes of Gout, and Pathological Observations, . 478
Treatment, ... 483
Management of Gouty Subjects during the intervals, 488
Chap. II.—Rheumatism, . . . 492
Acute Rheumatism, ... ib.
Symptoms, ... 493
Treatment, ... 495
Chronic Rheumatism, . . . 499
Rheumatic Gout, ... 501

Page

CHAP. III.—SCROFULA, . . . 502
Treatment, ... 508
CHAP. IV.—DROPSY, . . . 515
General Remarks, ... ib.
Anasarca, ... 542
Treatment, ... ib.
Hydrothorax, ... 543
Stethoscopic Signs, . . . ib.
Treatment, ... 544
Ascites, ... ib.

PART IV.

DISEASES OF THE CIRCULATING SYSTEM.

CHAP. I.

GENERAL REMARKS ON DISEASES OF THE CIRCULATING SYSTEM.

Diseases of the heart, from their frequency, and the extreme severity of their symptoms, constitute a very important branch of Practical Medicine. Till the conclusion of the last century, the generality of the profession were very imperfectly acquainted with them, and even now, when so much has been done by the labours of Corvissart, Laennec, Bertin, and others, very erroneous notions prevail both with regard to their diagnosis and treatment. On this subject, our common systematic works are particularly deficient, and with the exception of the imperfect Treatise of the late Mr Burns, no original work exists in English, on this interesting and important class of diseases; but it behoves me to mention, that the "original cases" of Dr Forbes are particularly deserving of attentive perusal; and many valuable papers and cases are scattered through our periodical works, and the transactions of different Societies.

The utilities of the discovery of Mediate Auscultation by Laennec, in diseases of the lungs, have been already as fully discussed as the plan of the work will allow. Great advantage may also be derived from the employment of the stethoscope in diseases of the heart. Percussion affords us some assistance, but much less than in many of the affections of the lungs. Some physicians inform us, that the stethoscope

is entirely useless in affections of the heart, because, according to their account, we cannot distinguish between organic disease and nervous palpitation, which we confess we cannot always do by the stethoscope alone. These gentlemen seem to forget, however, the impossibility of forming an accurate diagnosis by the common signs or symptoms; and I may observe, that they might as well be required to give up the exercise of their profession altogether, as reject the important assistance which we derive by mediate auscultation, because it does not in all cases afford an absolute certainty.

A common prejudice prevails, that as diseases of the heart are in their nature irremediable, therefore an accurate diagnosis would only lead to despondency and inertness of practice. Stethoscopists deny both the premises and the conclusion, and we insist, that the more accurately we are acquainted with the nature and seat of a disease, the more appropriate will be our practice. I can state from experience, that much may be done by judicious treatment, not only in alleviating, but in some cases in curing, diseases of the heart. We have seen patients labouring under disease of the heart, pronounced to be far advanced in consumption; and others, with disease of the valves, treated for indigestion and gastric irritation; and we have also seen patients labouring under enormous dilatation of the heart, in its last stage, who were laughed at, and treated for nervous or dyspeptic complaints, and recommended to avoid vegetables, and eat beef-steaks; who were urged to use exercise, when the very effort brought on severe dyspnœa, and a sense of suffocation. I shall content myself at present, by stating one additional circumstance,—that it is of the greatest consequence to be able to distinguish simple hypertrophy from dilatation of the heart, because I feel convinced the former is as capable of being cured, as almost any other disease to which the animal frame is liable; so that, if there were no other circumstances to uphold us, in making use of the stethoscope, as an additional means of diagnosis in diseases of the heart, this alone should induce every professional man of common feeling and honesty, earnestly to set about acquiring the power of employing the instrument. I blush to confess, that I was formerly one of those who ridiculed mediate

auscultation, merely because, on applying the stethoscope once or twice, I could hear nothing; but after putting myself under the direction of Dr Scott, I was able, in the course of a very short time, to discriminate between the sound produced by respiration in a healthy state of the lungs, and that in disease.

The contractions of the heart give rise to very distinct sounds, which enable us to study with ultimate success the actions of that organ, and to detect any irregularity or deviation from its natural condition. Before describing the organic changes which the heart undergoes, it is necessary to give a very brief analysis of its natural action as heard and felt with the stethoscope. If we apply this instrument to the region of the heart, and place a finger on the radial artery, a moment previously to the arterial pulse the ear is sensible of a slight impulse, accompanied by a somewhat dull, but very distinct sound. Immediately, and without any interval, a clear sound is perceived, resembling that of a valve, or whip, or the lapping of a dog. After this, there is a short but well-marked period of repose.

In a healthy person, with a well-proportioned heart, and carrying a moderate quantity of flesh, the shock or impulse of the heart can be felt over, or very near, the cardiac region only. In persons who are thin, and the thorax narrow, the impulse is more extended, and may be felt over the whole of the sternum, and occasionally over the left side of the thorax.

The sound can generally be heard over the left side, anteriorly, and under the clavicles, but more faintly as we recede progressively from the cardiac region. When more extended, it is heard successively in the following places;—1. Left side anteriorly,—2. Right side anteriorly,—3. Left side posteriorly,—4. Right side posteriorly.

The intensity of sound is progressively less in the order above mentioned, but it must be recollected, that a condensed, or strongly compressed lung, transmits the sound better than a healthy one; and when there is much wheezing, the sound of the heart is obscured. Therefore, in estimating the heart's action, we must always take into account the state of the lungs.

When the heart can be heard in all the points stated, we

may suspect that it is larger than natural, and that it is dilated; for it may be stated generally, that a great extent of sound is a mark of thin parietes; and that a strong impulse, with a confined range of sound, coincides with hypertrophy, or increased thickness in the walls of the heart.

By the shock or impulse, we mean the sensation of percussion which is communicated to the ear on applying it immediately to the chest, over the region of the heart, or through the medium of the cylinder of wood. The degree of impulse is inversely as the extent of the sound, and directly as the thickness of the walls of the heart; when these walls are very thick, the shock is often so great as to elevate the ear of the observer, and may be often perceived even through the garments.

When the walls are *very* thin, no impulse is communicated, even when the sound is very loud. A strong impulse, then, is to be considered as a characteristic of simple hypertrophy; —the absence of impulse, with increase of sound, as an indication of simple dilatation;—sound and impulse conjoined, point out the combination of hypertrophy and dilatation.

It has been stated, that the action of the heart is accompanied by two distinct sounds, and one impulse; that the first sound is dull and prolonged, and that the second, which immediately succeeds the other, is sharp and clear; after which there is an evident interval. Accompanying the first sound, there is a shock or impulse felt by placing the hand over the region of the heart, which is not synchronous with the pulse at the wrist. Much diversity of opinion exists, and considerable discussion has lately taken place, as to the causes of the impulse and sounds, as well as respecting the rythm or order of contraction of the different cavities of the heart; and it appears that the opinions of Laennec upon these physiological points are erroneous, and must be abandoned. Laennec supposed that the first sound is produced by the contraction of the ventricles, the second by that of the auricles; but Mr Turner has shewn, in a paper published in the 3d vol. of the Ed. Med. Chirur. Transactions, that the contraction of the auricles always precedes that of the ventricles: thus reversing the almost universally received opinion of the order of the contrac-

tion of the different cavities of the heart. Mr Turner states that the contraction of the auricles is so immediately succeeded by that of the ventricles, that he found it very difficult, if not impossible, to distinguish any interval between them. He thinks, therefore, that the first sound is occasioned by the almost simultaneous contraction of both sets of cavities.

Cause of the First Sound and Impulse.—It is proper to mention in this place, that the sounds produced by the heart's action, are not dependent on the contraction or relaxation of the muscular fibres of that organ, but are occasioned by the motion of the blood on the uneven surface of the cavities of the heart; the intensity of the sound being increased by the rapidity of the motion, the roughness of the surface over which the blood passes, and the thinness of the muscular structure of the heart. On this point Dr William Stokes of Dublin, and Mr Spittal, are agreed. After a careful review of all the writings on this subject, and frequent examinations of the action of the heart by auscultation, I believe Dr W. Stokes' view to be correct, that the first sound and its accompanying impulse, are produced by the motion of the blood propelled into the ventricles by the contraction of the auricles. M. Magendie states, that the two sounds of the heart are owing to the successive impulsation of the apex and side of the heart against the thorax, and that they are quite unconnected with the motion of the blood, or condition of the valves. He further states, that in hypertrophy of the heart to such a degree as to leave no space between the heart and ribs, there is no impulse and no sounds. These views are erroneous, and have been ably refuted by M. Pigeaux, who has adopted opinions corroborative of those of Dr William Stokes.

Cause of the Second Sound.—Mr Turner supposes the second sound to depend on the flapping of the pericardium on the heart. Dr Williams considers it to be the effect of the flapping of the mitral and tricuspid valves against the walls of the heart. Mr Spittal is rather inclined to attribute it to the rushing of blood into the ventricles, during their elastic dilatation. Mr Spittal has erred, after ably and successfully refuting the theories of M. Laennec, Mr Turner, and Drs Barry and Williams. That he should not have formed a correct

opinion as to the second of the consecutive sounds, is not to be wondered at, when we consider that he was misled with respect to the first. But it is with pleasure I seize this opportunity to express the high sense I entertain of Mr Spittal's talents and zeal in the cause of medical science, and his superior acuteness in auscultation, of which I have several times availed myself in practice. Dr W. Stokes performed some vivisections in August 1829, to ascertain whether there is a want of synchronism between the impulse of the heart and pulse at the wrist, at the suggestion of Dr M'Donnell of Belfast, who had many reasons for doubting the correctness of Laennec's statements concerning the heart, wherein he describes the impulse felt at the side as the effect of the contraction of the ventricles. These experiments were performed in company with Mr Hart, and in the presence of many pupils; the results were immediately made public by both these gentlemen, in their lectures and in private conversation. They were well known in Dublin many months before the appearance of any other researches on the subject. In the course of these experiments, Dr Stokes became convinced that the cause of the second sound is the motion of the blood during the contraction of the ventricles, and the dilatation of the auricles; for there appears to be no doubt that the dilatation of one set of cavities takes place at the same moment with the contraction of the other, a fact which was stated some time before by Dr Barry. I entirely coincide with Dr Stokes as to the second sound, and his researches will remove many of my doubts as to the possibility of determining disease of the valves and other parts on either side of the heart. If his opinion be correct, the sounds produced by disease affecting the auriculo-ventricular valves should be synchronous with the first sound, while those occasioned by disease of the aortic valves should be synchronous with the second. The subjects of Dr Stokes' and Mr Hart's vivisections, were the rabbit and goat. These gentlemen arrived at the following conclusions:

"1*st*, The process of contraction begins at the auricular, and terminates at the ventricular portions of the heart.

"2*d*, The contraction of the auricle in the goat, was evidently preceded by that of the sinuses of the vena cava.

"3*d*, The impulse at the side is produced by the dilatation of the ventricle.

"4*th*, After the expulsion of the contents of the ventricle, an interval of apparent rest occurs, during which, however, the auricles are filling."

Having arrived at these conclusions, they next turned their attention to the action of the arterial system. They found,

"1*st*, That in the state of health, the impulse of the heart precedes the pulse at the wrist, by an appreciable interval.

"2*d*, That this interval is more perceptible in proportion to the slowness of the heart's action.

"3*d*, That the length of the interval is directly as the distance of the vessel examined from the heart.

"4*th*, That hence the wave of blood at each pulse is progressive through the arterial system, and not an instantaneous impulse, as has been supposed." Ed. Med. and Surg. Journal, October 1830.

Certain remarkable sounds, which accompany the action of the heart and arteries, require a few observations in this place.

1*st*, The blowing or bellows sound, *(bruit de soufflet,)* as it is called by Laennec, from its resemblance to the sound produced by that instrument when blowing the fire. This sound, when present in the greatest degree, entirely masks the natural sounds produced by the action of the heart. It is sometimes heard in the subclavian and carotid arteries.

2*d*, The sound of the saw or file *(bruit de râpe)* is another phenomenon occasionally presented by the action of the heart. Both this and the blowing sound were formerly considered as invariably indicating disease of the valves of the heart; and although often present in such circumstances, yet are by no means to be considered as pathognomonic, as they may exist in a slight degree without any organic lesion of the valves. Laennec states, that the only disorder which appeared to him constantly, or almost so, to accompany the bellows and file sound, was a state of nervous agitation, which, however, was more or less marked by other symptoms. These sounds are not unfrequently met with in young persons of a nervous temperament, and, in most cases, we can make ourselves

pretty certain that they are owing merely to a nervous affection; for if we examine such patients in a state of repose, no particular sound will be heard, but after violent exercise, or during a state of agitation, they become instantly perceptible: whereas, if they proceed from disease, they will never be entirely absent, although they may be increased by every cause which tends to hurry the circulation, and may be heard at all times in severe cases, even on the back. It appears probable, that even in the pure nervous affections, sounds, resembling those produced by disease of the valves, may hereafter be found to depend upon a congenital disproportion between the heart and the orifices through which the blood passes, and which produces the effect only when the circulation is hurried.

Since writing the first edition, I have seen several dissections, which proved that both the *bruit de soufflet* and the *bruit de râpe*, but particularly the former, occasionally depended on hypertrophy, with dilatation of the cavities of the heart, as well as on disease of the valves. Examinations after death have convinced me, that both sounds may likewise be occasioned by disease of the aorta.

Dr Scott, to whom I am indebted not only for the little knowledge I possess in the use of the stethoscope, but for much valuable assistance in writing this part of the work, informs me, that he has observed a very peculiar sound during the action of the heart in nervous persons;—it is a slight click or jingle, sometimes resembling the splashing of water in a metallic vessel. The first time he met with this sound, was in a very young woman, in a state of insensibility, where the sound gave the distinct idea of a fluid in the pericardium, agitated by the heart. I have noticed this remarkable phenomenon also, but am more inclined to attribute it to small quantities of fluid and flatus moving from one part of the stomach or bowels to another.

3d, The purring or whizzing vibration,—the cat purr, may also be briefly mentioned. It is a peculiar sensation communicated to the hand placed on the cardiac region, and which Corvisart considered a sign of ossification of the valves, more particularly the mitral. This vibration is in general confined

to the left side of the chest, and though it is no doubt met with in almost every case of considerable contraction of the valves, yet it is sometimes perceived in a slight degree when no organic lesion exists.

Symptoms produced by diseases of the heart and large blood-vessels.—Before describing the different diseases of the heart, a brief enumeration may be given of the general symptoms which accompany these affections. In the early stages, it is of the utmost consequence to form an accurate diagnosis; but the general symptoms are very nearly similar in all.—These are, habitually short and difficult respiration; palpitation, and a feeling of oppression about the heart on any sudden or violent exertion, as in running or walking up an ascent. The late Dr Monro was so well aware of this, that before examining a patient suspected to labour under disease of the heart, he was in the habit of desiring him to ascend a flight of stairs quickly. Emotions of the mind, frequently induce paroxysms of panting and dyspnœa. Sleep is often disturbed by sudden startings and fearful dreams; there is an anxious cast of countenance, and a marked degree of irritability of temper and restlessness; determinations of blood to the head take place; and very generally a disordered state of the digestive functions is observed, indicated by impaired appetite, flatulent distension, irregularity of the bowels, &c. which invariably aggravate the feeling of uneasiness about the heart. Sometimes the patient suffers most violent paroxysms of pain, which are occasionally attended with great vascular action and palpitation, at others with diminished vascular action, and a tendency to syncope.

In the last stages, diseases of the heart can in general be recognized at a single glance; the patient is unable to lie down, he therefore requires to be propped up in a chair or bed; the face is puffed; the lips are swollen, and display the different shades of colour produced by impeded circulation through the lungs; the legs and scrotum become œdematous, and dropsical effusions often take place into the cavities of the thorax, pericardium, and abdomen. Hæmorrhage from the lungs is not uncommon; and the case sometimes terminates in apoplexy; indeed, diseases of the heart frequently terminate in sudden

death. The pulse varies much, according to the particular disorganization; in hypertrophy, for example, it is hard, full, and bounding; in dilatation, feeble, compressible, and irregular in point of strength; in valvular disease, small, and easily rendered intermitting by exertion, and by mental emotions. Some of these symptoms are, however, common to other diseases; and those of the earlier stages may depend on disorder of the digestive organs, or may accompany affections usually termed nervous. It is of extreme consequence that these cases should be distinguished, if it were only to save the reputation of the medical attendant, as patients so affected generally die suddenly, at a time when the physician has given a favourable opinion, or perhaps lightly estimated the complaints of the patient. With the assistance of the stethoscope and percussion, combined with an accurate study of the individual characters of the case and the constitution of the patient, we shall be able to form a more correct diagnosis, than those who trust solely to the ordinary means of investigation.

In making our examinations with the stethoscope, we should be particularly careful that the patient is free from agitation, and has been in a state of perfect quietude for some time.

Causes of Diseases of the Heart.—The causes of diseases of the heart are imperfectly known;—affections of the lungs, which give rise to long-continued and severe dyspnœa, are, no doubt, among the most frequent causes;—they are considered by Laennec as the best ascertained. We know, perhaps with more certainty, that diseases of the heart give rise to various affections of the lungs, more particularly hæmoptysis and pulmonary apoplexy.

A disproportion between the diameter of the aorta and size of the heart, was considered, by Corvisart, as a constant cause of dilatation; and it is probable that a congenital disproportion is a frequent cause of hypertrophy.

Affections of the mind have been considered as the most usual causes of disease of the heart; thus, we are told, that during the French Revolution, these affections became much more common than at any previous period. The influence of

depressing and exciting passions, in predisposing to disorders of this kind, can scarcely be questioned; but it must be borne in mind, that about the period above alluded to, greater attention began to be directed to this branch of pathology, and in point of fact, these diseases became better understood, and more frequently recognized. Every cause which disturbs the balance of the circulation, producing an overload of blood about the heart and lungs, excites this class of affections; hence I have been able to trace it to long-continued intermittent fevers. It would appear that rheumatism is a frequent cause of enlargement of the heart: it is well known by practical men, that pericarditis sometimes comes on during an attack of acute rheumatism. We find that those who have suffered repeatedly from acute rheumatism, not unfrequently fall victims to enlargement, or other diseases of the heart. In what relation these diseases stand to each other, cannot at present be discussed. Gastric irritation is a very common source of disordered action of the heart, and, it is probable, often lays the foundation of structural disease in that organ.

In conclusion, it may be confidently stated, that no subject connected with the exercise of the medical profession, deserves more attentive investigation, or presents more extensive views of deep practical interest and importance.

CHAP. II.

PALPITATION, AND ANGINA PECTORIS.

PALPITATION.

By this term, I mean the occurrence of an unusually strong and frequent pulsation of the heart, without any organic lesion; the palpitations produced by disease of the heart itself, are to be considered afterwards. The affection now under consideration, is to be regarded as purely nervous, occasioned by excessive indulgence in various passions, by mental emotions, and very frequently, by a disordered state of the stomach and bowels. Stimulants of all kinds, violent exercise, excessive depletion, occasionally produce it. Palpitation is more readily excited in persons of a nervous and sanguine temperament: when first observed, the affection is generally slight and transient, but by frequent repetition, the organ at last becomes so irritable, that the least circumstance reproduces it.

Nervous palpitations are frequently very distressing, even when the body is in a perfect state of repose, particularly during the first part of the night, and often prevent sleep for many hours. The action of the heart is not only accelerated, but increased in impulse and sound; sometimes the action is tumultuous, and occasionally so strong, that the person affected feels it painfully. There is sometimes a sensation of internal

agitation, particularly in the head and abdomen, and, as happens in hysteria, the urine is copious and limpid.

Nervous palpitations are not to be neglected, as by frequent repetition, they may lead to disease of structure, either in the heart itself, or in some other organ. Laennec says, that he has never seen any proof of the accuracy of this opinion, but I think I have.

According to Laennec, in nervous palpitation, the first impression conveyed by the stethoscope is, that the heart is not enlarged. The sound, though clear, is not heard loudly over a great extent, but this very much depends upon the thickness of the parietes of the chest. In thin people, I hear the sound during palpitation, in every spot on the anterior part of the chest; and when the heart is acting very violently, I have perceived it in the back also. With respect to the impulse, Laennec states, that in the nervous affection, the head of the observer is never sensibly elevated. This, he says, is the most important and certain of any sign, when taken in conjunction with the frequency of the pulsations, which are always quicker than natural, most frequently from 84 to 96 in the minute. I have seen and felt the impulse of the heart in nervous palpitation, not only elevate the head of the observer, but raise the bed-clothes. Dr Ferrier, one of the most accurate of observers, in detailing a case of violent palpitation of the heart, states, (p. 205. vol. 1st,) "Every stroke of the pulsation raised her clothes, so as to be visible at some distance;" under the use of castor, with attention to her clothing and diet, she recovered "in the course of a few weeks." In this affection, there are rarely any signs of determination of blood to the head or chest.

It is rare that palpitations produced by functional derangement of the heart continue long at any time: they are in general transient, and are perhaps less troublesome when the patient is taking exercise in the open air, than at other times. When of long continuance, and without intermission, they will for the most part be found to depend on some organic lesion.

Treatment.—Venesection, or the application of leeches, is sometimes adviseable, particularly in young plethoric indivi-

duals, who are affected at the same time with some febrile movement. French practitioners recommend the application of leeches to the anus in nervous palpitations. Laxatives, cold or warm bathing, moderate exercise in the open air, light nourishing diet, early hours, and avoiding the exciting cause, will usually be found successful. When the affection, however, resists these remedies, various antispasmodics have been recommended, as opium, ether, musk, castor, and valerian; of all these, perhaps the best is the volatile tincture of valerian.

ANGINA PECTORIS.

This dreadful disease generally makes its attack in the following manner: It is commonly first felt when an individual is walking up-hill; he is suddenly and unexpectedly seized with an agonizing sensation in his breast, a little to the left of the sternum; he experiences a sense of constriction and suffocation, which obliges him to stop. After a little rest, these symptoms disappear, and he flatters himself that it is nothing more than a common stitch in the side, from walking too quickly. I have known a person fall down in a state of temporary asphyxia, even on the first attack; those affected in this manner, fancy that they have merely fainted from excessive pain. Several such attacks may take place in the course of a few years, or even a few months, the paroxysms continuing only for one or two minutes, and the person thinks nothing further of them. In the course of time, however, they return more frequently; the pain becomes more and more excruciating, and the paroxysms continue longer. In the early part of the disease, exercise seems to be required to bring on a paroxysm, but when more advanced, every little excitement, or exertion of mind or body, or eating an indigestible article of food, produces an attack; at last, the paroxysm comes on without any assignable cause, even when in bed, and during sleep.

At the first onset of the disease, the pain is usually confined to the breast, in the region of the heart; afterwards it extends towards the shoulders, and frequently affects the supe-

rior extremities down to the wrists. I had a gentleman under my care, who complained of the pain extending from the breast to the arms, stopping exactly at the insertion of the deltoid muscle on each side. In severe cases, the patient is pale, perhaps quite ghastly,—his features contracted,—his eyes hollow,—his countenance expressive of the most dreadful suffering;—his body perhaps cold, and covered with a cold, clammy sweat;—his respiration is quick, but free; that is to say, the patient can, if you desire him, occasionally take in a deep inspiration. In such cases, the pulse is in general slow, and so contracted and weak as scarcely to be perceptible; but this varies much, for in other instances, particularly when the skin is warm, and the face flushed, the pulse is quick, strong, and irregular. I have seen cases in which it was perfectly natural in strength and number of pulsations during a paroxysm.

In slight cases, the whole paroxysm is sometimes over in half an hour; in others, in an hour; and it ceases often with a discharge of flatus from the stomach and bowels. Sometimes it disappears suddenly, leaving no sense of uneasiness behind; at others, considerable soreness remains in the chest for several hours or days.

In the most dreadful cases, the patient never feels entirely free from uneasiness and constriction in the chest, and he dreads making the least exertion.

In the year 1826, I was requested, by one of my pupils, to see a gentleman who had had several attacks of this disease, and was then labouring under one of the most severe paroxysms I have ever witnessed, which had continued for several days before my visit. It was most afflicting to see a strong and a brave man weeping like a child, and imploring relief in the most impassioned strain.

An interesting case of angina pectoris occurred in my Dispensary practice in the year 1828. The patient was carefully attended by the late Dr T. Briggs,* formerly of Liverpool, from

* Dr Briggs' benevolent and enterprising spirit led him to join the late expedition to Africa, where he fell a victim to disease; and I regret to learn, that an effort has since been made to tarnish his reputation by some one connected with the enterprise, by way of accounting for its failure. But it has not pro-

whose notes the following particulars are taken:—James Terry, æt. 38, a remarkably tall and athletic man, by trade a sawyer, habits temperate. Has been ill three years; his complaints began with occasional fits of palpitation, and severe pain in the region of the heart; but he was able to continue at his work for the three first months. He was then obliged to relinquish his occupation from the frequency and violence of the paroxysms, which were most severe when walking, or making any unusual exertion. He found relief by pressing a walking-stick strongly against the breast during the fit. His symptoms have become progressively worse; he has been under the care of many medical gentlemen, and has been put under the influence of almost every known remedy. Mr Liston ordered him to be bled twice, and blistered many times, without relief. In the Infirmary of Edinburgh, under Dr Alison's care, he was bled again, and took mercurial medicine till the mouth was made sore, with temporary benefit. But in a fortnight he became as bad as ever he had been, and Dr Alison advised him to go to the country. In continuing the history of the case, he stated, that a gentleman punctured "*the bag of his heart*," and blew air into it; "*but I understand*," says Dr Briggs, "*that the air was injected from a bladder into the cavity of the left pleura, and was taken out next day.*"

Terry is now (13th Nov. 1828) seldom free from violent pain in the chest, which he compares to that produced by boiling water applied to the body. The pain shoots down the arms to the wrists; it is always brought on by any muscular exertion, during the act of eating or drinking, and voiding stools or urine, and by lying down in a recumbent posture. He is always worse during the night. The violence and extent of the pain can be diminished by taking a deep inspiration, and keeping the lungs distended, and by pressing the chest with considerable force against the back of a heavy old-fashioned arm chair which he keeps for the purpose, and in this position he generally spends the night. The inferior extremities are œdematous, and greatly enlarged. Appetite good;

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duced the desired effect. His aged parents may rest assured, that, notwithstanding the wicked attempt to throw odium upon their son, his memory will be long cherished by all who had the pleasure of knowing him.

but he eats very little, and that slowly, in consequence of the exacerbation of pain during the act of swallowing. Digestion appears to be perfect, and the state of the bowels regular. The heart's impulse is very great,—it shakes the whole frame, and when the patient leans over the chair, the pulsations may be counted by the violent motion of the heart against the posterior part of the thorax. Over every part of the thorax there is a sound like the rushing of water, corresponding to the contractions of the heart. This sound masks all other sounds, even that of respiration; and a similar sound is perceived by applying the ear over any considerable artery. The pulse is strong and full,—it vibrates against the finger, imparting a sensation as if the artery were ready to burst. The pulse, which is sometimes stronger in one arm than the other, generally beats 60 in a minute,—now and then there is a double beat, as if an additional pulsation were interposed; during a paroxysm the pulse is suddenly quickened so as to beat 120.

At this period the patient's sufferings were occasionally mitigated by large doses of the wine of colchicum, and tincture of hyosciamus; but he soon gave up these remedies, from the languor and drowsiness they occasioned. Death took place early in the morning of the 9th December, having complained for some time previously of severe pain in the right thigh and knee, which were intensely swollen from effusion into the cellular substance. Before his death, he talked calmly of the event which was to terminate the most severe bodily suffering I have ever had the misfortune to witness, and he desired his wife to allow me to take away any part of his body that might be found diseased on dissection.

The examination of the body took place on the following day, 10th December, 36 hours after death.

Putrefaction had already made great progress; the cuticle was every where loose, and the body crepitous from air in the subcutaneous cellular tissue. The lower extremities and scrotum were tense from œdema. The thorax capacious and well formed, only it was deeply indented by the constant pressure on the chair.

On opening the thorax, the pericardium, containing a heart of enormous size, seemed to fill the chest, and concealed the

other contents. It lay obliquely across, occupying a space of about fourteen inches, extending from the 7th left rib to the 1st on the opposite side. In size it resembled a large ox's bladder fully distended. The right lung, compressed into a narrow space, adhered firmly to the surrounding parietes every where, except in the antero-superior part. It was greatly engorged with blood, but upon minute examination, was found healthy in structure. The left lung, free from adhesions, was found compressed into a small space also. The heart was then carefully removed, when the fore part of the bodies of five or six of the dorsal vertebræ were observed to be partially absorbed by the pressure of the heart. On opening the pericardium, it was found to contain a small quantity of serous fluid, and some bubbles of air; its coats presented a natural appearance, and there were no adhesions with the heart. The heart appeared to all present to be about the size of that of an ox,—it was enlarged in every part, and the left auricle and ventricle were fully distended with blood. Both auricles and ventricles were in a state of hypertrophy, and greatly dilated; the left ventricle contained more than twelve ounces of blood. The orifices were all remarkably dilated also, but the valvular apparatus was found in a sound state. The size of the aorta was not much, if at all, increased from the arch; its internal surface was vividly red, as were the mucous membranes in every situation. The heart and pericardium, forming two dried preparations, are preserved in my Museum.

Angina pectoris rarely attacks people under forty; gouty subjects, and those who are corpulent, seem to be more liable to it than others. It appears to attack men more than women; and I believe that sedentary habits create a predisposition to it, as well as long-continued and very violent bodily exertion.

Appearances on Dissection, and Pathological Remarks.—This disease has attracted considerable attention on the part of pathologists to ascertain its nature and seat, since it was first noticed by Dr Heberden in 1768, in a paper contained in the 2d vol. of the "Transactions of the College of Physicians" of London.

Subsequent writers have committed a great error by attri-

buting angina pectoris to one particular disorganization: thus, one has attributed it to ossification of the cartilaginous extremities of the ribs; a second, to ossification of the valves of the heart; a third, to fat accumulated about the heart; a fourth, to dilatation and hypertrophy of the heart. Dr Parry supposed that it depended on ossification of the coronary arteries;—Dr Haygarth, on inflammation of the mediastinum;—Dr Hooper, on diseases of the pericardium;—and there are many who think it is produced by asthma. Dr Hosack, an American physician, is of opinion that it most frequently arises from general plethora, more particularly "from a disproportionate accumulation of blood in the heart and large vessels." I have seen each of these morbid appearances on dissection, in subjects who were never affected with angina pectoris; and it has been alleged, that patients have died suddenly from this affection, in whose bodies not the slightest trace of disease of any kind was perceptible, which has led some to assert that it depends upon scrofula, syphilis, a nervous temperament, or a peculiar affection of the *par vagum*. Dr Parry's opinion seems still to have great weight with many in the profession; but it may be mentioned, that I have seen two cases in which the coronary arteries were extensively ossified, and a third, in which they were completely so, and yet none of the patients had symptoms of this disease. A remarkable case of the same kind, which happened many years ago, is detailed in the 1st vol. of the "Medical Communications," by Mr Watson. In justice, however, to the memory of Dr Parry, it ought to be stated, that he did not attribute the disease to the effects of ossification of the coronary arteries alone, for he distinctly states, that the symptoms shew that an accumulation of blood *takes place about the heart and large vessels.* This statement goes so far to confirm the opinion of Dr Hosack, which Dr Forbes assures us is more in accordance with his own observation than any of the other opinions; but he adds, (at page 692. of his Translation,) that "in persons subject to this complaint, in whom no severe organic disease of the heart existed, I have generally found, by auscultation, that the organ was possessed of thin parietes and feeble powers." In my work on "Puerperal Fever," which

was published in the year 1822, a case of angina pectoris is recorded, (at page 83,) which was evidently produced by an accumulation of blood in the heart and large vessels. The life of the individual appears to have been saved by timely blood-letting: thirteen years have now elapsed, and there has been no tendency to a return of the disease.

Treatment.—The symptoms of Angina Pectoris occasionally accompany such a variety of organic lesions, and take place from what, to all appearance, may be considered a neuralgic affection, that it is scarcely to be wondered at that so many remedies have been recommended, and so few found serviceable.

If there be marks of general plethora, with or without an organic affection of the heart, blood is to be taken from a vein, particularly if there be signs of an accumulation of blood either in the heart or lungs; at the same time, we must be careful to restore the heat of the body, if it be below the natural standard. I have so frequently seen a neglected state of the stomach and bowels precede an attack of angina pectoris, that I consider it of the greatest importance to clear out the primæ viæ as speedily as possible. Should the attack come on soon after a meal, an emetic is to be prescribed; if not, purgatives are to be had recourse to, and repeated at short intervals. I have seen leeches serviceable, as well as the application of a large mustard plaster over the præcordial region. Long-continued contra-irritation on the chest, with tartar-emetic ointment, is to be persevered in for a considerable time, and repeated at intervals, upon the least unpleasant sensation in the chest.

It is a great matter to be able to say, whether or not there be any organic disease of the heart; and although the stethoscope is said not to be so useful in diseases of the heart as of the lungs, yet, in a majority of cases, taken along with other symptoms, we shall be able to determine this point with sufficient accuracy. If there be no disease of the heart, very large opiates, united with colchicum, will be occasionally found singularly beneficial; even in Terry's case, (p. 18.) this treatment was serviceable. If the bowels are in a bad state, a pill may be exhibited every second or third hour, composed of five grains of calomel, the same quantity of opium, and three or

four drops of oil of croton. Many object to the use of opium in such cases, but without sufficient grounds. The celebrated John Hunter took opium, it is alleged, with an aggravation of the disease; but the small doses he used were quite inadequate in such a severe disease. It is stated by Sir Everard Home, that John Hunter was advised to take wine, which he did accordingly, but found the paroxysms more readily brought on after it. Laennec speaks highly of magnetism in such cases, and although too much cried up at one time by medical men, he thinks it is too much neglected at present. He used it in the following manner:—"I apply," says he, "two strongly magnetized steel plates, of a line in thickness, of an oval shape, and bent so as to fit the part,—one to the left præcordial region, and another exactly opposite on the back, in such a manner, that the magnetic current shall traverse the affected part. This method is not infallible, any more than others employed in nervous cases; but I must say that it has succeeded better in my hands, in the case of angina, than any other, as well in relieving the paroxysm, as in keeping it off." And he subsequently assures us, that when the magnet affords little relief, a good effect has followed the application of a small blister under the anterior plate. (Translation, p. 693.)

Should our remedies unfortunately fail in producing relief during a paroxysm of angina pectoris, we have the consolation to know, that much may be done to prevent a return of the complaint, if there be no organic disease of the heart. Fatigue and violent exercise, together with all excesses, are to be carefully avoided, as also stimulants and the application of cold. The diet of a patient so circumstanced must be light, and easy of digestion, and he should limit himself to a certain quantity of food by weight; and he should not drink more than is necessary for the purposes of digestion. Assiduous attention must be paid to the state of the bowels, to prevent constipation; and the patient should regulate himself by medicine, or other means, that he shall have one or two stools daily.

CHAP. III.

PERICARDITIS AND CARDITIS.

PERICARDITIS.

This is a disease, which is seldom so well marked in its external characters, as the importance of the organ affected would lead us to expect. It is sometimes so insidious as to produce considerable disorganization before severe symptoms appear to attract our attention; at others, it creates constitutional disturbance, which indicates a disease of great severity; but our attention becomes fixed, perhaps, upon some local pain, at a distance from the seat of the disease, to relieve which, our best efforts are directed. In truth, as Laennec observes,—"There are few diseases attended by more variable symptoms, or of more difficult diagnosis than this." And he assures us that it is as frequently mistaken as recognized:—"This is the result (says he) of my own experience up to the present time; and to mine I may add that of many of my medical brethren, and among others, M. Recamier." Cullen confesses that he knew little upon this subject,—so little, that he has not devoted more than twenty-seven lines, in his work on the practice of physic, to the consideration of carditis and pericarditis; and his concluding words are,—"There is therefore, upon the whole, no room for our treating more particularly of inflammation of the heart or pericardium." (Par. 383.) Nevertheless, he has given the following definition:—"Pyrexia; pain in the region of the heart; anxiety; difficult respiration;

cough; unequal pulse; palpitation; syncope." All the systematic authors seem unfortunately to have followed this definition, in the descriptions which they have given of this disease, instead of copying from nature.

By pericarditis, I mean an inflammation of an acute, subacute, or chronic nature, of the serous membrane which lines the pericardium, and also that which gives an external covering to the heart itself, and the roots of the great vessels. In describing the phenomena of this disease, it must be kept in recollection, that in this, as well as in other inflammatory affections, a great number of varieties occur, giving rise to symptoms more or less urgent. In two or three instances, I have seen the symptoms so urgent, as to produce great affliction; in these, the pain was situated in the region of the heart, increased on taking an inspiration, as well as by any considerable motion of the trunk, which produced a tendency to syncope; the breathing anxious and irregular, rather than difficult; cough, but slight in proportion to the anxiety of the breathing; the countenance sharp, and peculiarly expressive of distress: the pulse was regular at first, but small like a wire; it generally becomes irregular, however, during the act of speaking, and when the patient moves. It is of great consequence, in all severe diseases, to compare the strength of the pulse at the wrist with the action of the heart, by applying the ear in the same situation; and this precaution is peculiarly necessary in diseases of the heart and pericardium. In the latter, the pulse, as already stated, is generally wiry and small, when the action of the heart itself is perhaps excessively strong, or I should have rather said, tumultuous. Even in insidious cases, an inequality will sometimes be perceived between the strength of the heart's action, and that of the pulse at the wrist. A case lately occurred to me of an insidious nature, which I shall briefly relate:—A middle-aged gentleman, having an extraordinary curvature of the spine, but who had, nevertheless, enjoyed robust health, remarkable for agility and muscular strength, called at my house to seek advice. He told me that, for a week previously, he had been affected with an asthmatic complaint, which had now increased to such a degree, that he could scarcely take any exercise; that

he passed sleepless nights; was afflicted with cough, attended by some expectoration; but he described his greatest suffering to proceed from violent spasmodic contractions, affecting the muscles of the extremities. He had not lost much flesh, but laboured under considerable oppression and debility. On examining the chest, he was found to be somewhat chicken-breasted; he was unable to fill his lungs completely; the action of the heart was felt over a large space, tumultuous and irregular, intermitting occasionally six times in the minute, generally three or four; the pulse at the wrist having the same irregular and intermittent character, but it was small and weak in proportion to the strength of the heart's action. He stated that his appetite was bad, that it was almost impossible to keep his extremities warm, and that he chiefly attributed his complaints to flatulency. I desired him to go home, and upon no account to venture abroad again. Next day I found him rather better, having had several copious stools, with which he passed a great quantity of flatus;—this was on Wednesday. On Thursday and Friday he still continued to improve; but I had no doubt he laboured under an affection of the heart, and, much to his disappointment, gave strict orders that he was on no account to go out. On Saturday, I found him very ill, complaining of great oppression in his breast, and difficulty of breathing; but his chief suffering proceeded from cramps in his extremities, and occasional spasmodic rigidity of the whole body, which was sometimes bent backwards, supported by the occiput and heels; and his landlady said, that the spasms were so severe during the night, that he could scarcely be kept in bed. He died suddenly in the course of the following night. On dissection, the brain was found to be quite healthy. No trace of disease was found in the spinal cord, except that a very old adhesion was discovered, and two or three large ossific scales on the surface of the arachnoid membrane.* The pericardium was large, and contained a considerable quantity of turbid serum, with a deposition of lymph, adhering in various places to the surface

* This beautiful preparation is preserved in my Museum.

of the heart, but which was more abundant at the roots of the great vessels; the heart itself was large, although it did not seem disproportioned in its different parts; the valves were sound. That I mistook the case, is very evident, and it is related expressly to shew the circumstances which led me astray in the investigation. Had the individual not had a deformed spine, and the severe cramps, I might, in all probability, have detected the true nature of the disease. I considered the dyspnœa to proceed from a nervous affection of the lungs, complicated with enlargement of the heart. Previously to the occurrence of this case, I would have declared it to be impossible for any one labouring under pericarditis, to be able to walk more than half a mile up a hill, which this gentleman did when he came to me, on the Tuesday before his death; and when returning home, before he reached his lodgings, he had to mount three flights of stairs.—Since the publication of the first edition, I have seen several severe and insidious cases, all of which were connected with acute rheumatic attacks. In one fatal case, there was no pain in the thoracic region, but the patient complained of oppression, and was affected with slight dyspnœa; the action of the heart was tumultuous, and the pulse quick. The tongue was rough, deeply fissured, and red.

Laennec and other practical physicians agree, that, in the present state of our science, we are not acquainted with any symptoms which point out, with certainty, the presence of pericarditis. Perhaps this is more to be attributed to imperfect observation of the cases which have occurred, (very good examples of which are quoted above,) than to the obscure nature of the disease itself. M. Louis thinks that our ignorance of diagnostic signs is to be attributed to our imperfect observations,—and in this opinion Dr Scott concurs. According to these gentlemen, the observations of authors have generally been incomplete,—many of the means of diagnosis have been neglected, and several circumstances of the greatest importance in forming an opinion of the nature of the disease, have been overlooked. From his own observations on this disease, and from an analysis of the cases on record, M. Louis is inclined to draw the following conclusions:—that pericar-

ditis is characterized by pain in the region of the heart, sometimes extending to the back and epigastrium, attacking the patient suddenly, and accompanied with a greater or less degree of oppression, and in certain cases with palpitation—irregularity and intermission of the pulse, and more particularly by a dull sound in the præcordial region, the other parts of the left side of the thorax remaining perfectly sonorous. Syncope sometimes also accompanies these symptoms, and occasionally infiltration of the extremities,—this probably takes place only when the progress of the disease has not been very rapid; but when it does appear, as it is one of the symptoms of disease of the heart, it ought particularly to fix our attention, and lead us to suspect an affection of that organ, or confirm our diagnosis, if we have already formed one. From the cases on record, Louis thinks that the disease may be detected in half of the cases where it exists; and when free from complication, he considers it to be as easily recognizable as the best marked pleurisy.

Causes.—These are, generally speaking, the same as produce other inflammatory affections within the chest. It may be attributed to moral causes also, such as grief and anxiety; and there can be no doubt that it is often occasioned by a metastasis during the course of rheumatism and gout.

Appearances on Dissection.—There is very seldom any redness to be seen in the acute affection; but we always find flakes of lymph floating, in a larger or smaller quantity of serum, and attached to the membrane itself. Sometimes the pericardium is amazingly distended, containing a quart, and even more, of this fluid. When any redness is observed, it is generally in small spots upon the surface of the pericardium. In some chronic cases, the pericardium is much thickened, and the heart enveloped with exudation. As Laennec very justly observes, it rarely presents the appearances of an equable membraneous layer, like the false membrane of pleurisy; on the contrary, its surface is most frequently marked by a great number of rough and irregular prominences. If the patient survive the first effects of the effusion, the lymphy part becomes quickly absorbed, and afterwards we find the albuminous matter slightly glueing the pericardium to the heart. I

have seen some cases where there was apparently no serous effusion, but a considerable quantity of lymph thrown out everywhere over the heart. Occasionally, we find the pericardium closely attached to the heart, forming a dense fibro-cartilaginous mass, incapable of being separated, even by dissection. Within these few years, I have seen two cases of this sort; one individual died during an attack of erysipelas, from the united effects of inflammation of the membranes of the brain and mucous membrane of the lungs; the disease in the pericardium must have been of very long standing, but he enjoyed, nevertheless, excellent health, and great activity of body and mind, up to the period of his last illness.—The subject of the other case was a young athletic man, who died from inflammation of the substance of the brain after a very short illness. About a year before, he had a severe indisposition, which was supposed to be hepatitis, and treated accordingly. After being in considerable danger, he gradually recovered health and strength. On dissection, the pericardium was found thickened and indurated, adhering firmly to every part of the heart, it being impossible to separate it in many places, even by careful dissection, without taking away the proper membrane of the heart. These two cases, and several others which I could quote, completely disprove the assertion of Corvisart, that no person can live, and preserve a good state of health, who is affected with a complete and close adhesion of the pericardium to the heart. On other occasions, the false membrane appears to be converted into cellular substance; and, although united to the heart, the adhesions are loose and long, and the pericardium can be easily separated.

On the surface of the heart, we sometimes observe opaque, white spots, generally of an oval figure, about an inch in length, sometimes much smaller, and at others, very much larger. A great difference of opinion prevailed respecting the true nature of these spots. From my own observations, and examinations after death, I have no doubt that they are the result of a partial inflammatory action on the surface of the proper covering of the heart. I used formerly to find it impossible to separate these in such a manner as to prove whether they were on the outside, or beneath the serous membrane.

At last, after submitting the parts to maceration for a few days, I have been able to remove them completely from the heart, leaving the serous membrane untouched, and apparently in a healthy state.—Baillie and Laennec are of the same opinion; Corvisart, on the other hand, considers these productions to be situated beneath the serous membrane, and entirely unconnected with inflammatory action.

Laennec states, that a tuberculous formation may sometimes take place, and thereby convert the acute into the chronic disease, as it frequently happens in the case of pleurisy and peritonitis, of which he has seen two instances; a third is noticed by Corvisart; and I have seen one case of it myself, in a man who died of a surgical disease, quite unconnected with that of the heart.

The muscular substance of the heart, in many of these cases, looks whitish, as if it had been macerated. Corvisart, and many others, suppose this loss of colour, particularly when attended by softening, to be a sign of inflammation in the substance of the heart itself; but I feel disposed to join Laennec, in doubting the correctness of this opinion. He states, that we can never be sure of the existence of inflammation in a muscular organ, unless we find a deposition of pus, or lymph, among its fibres.

Treatment.—If the disease be detected early, there can be no doubt of the propriety of general bleeding carried to the utmost extent the patient can bear, and repeated or not, according to circumstances. Leeches are to be had recourse to, when necessary; and it must be recollected, in treating an inflammation of a vital organ, that decision and promptness are of the utmost consequence to the patient. Antimony is to be used, together with contra-irritation. Purgatives must be occasionally employed, together with the strict antiphlogistic regimen.

If called late to a case, and when general blood-letting would be, perhaps, attended with immediate danger, we must have recourse to local abstraction of blood, by means of leeches, and throw mercury into the system as quickly as possible. I am disposed to attribute the recovery of the last of the two cases already quoted, (at page 27,) in which the

pericardium was found attached to the heart, to the action of mercury, which was administered for the supposed hepatitis.

CARDITIS.

Inflammation of the proper substance of the heart, is a very rare disease; I have seen only one case of it, which was treated for the affection commonly known by the term *angina pectoris*. The symptoms were unusually acute, and continued for four or five weeks, the patient never passing a night without fever, and never two days without having several severe paroxysms of suffering.

In general, however, the symptoms are represented as being similar to those which arise from inflammation of the pericardium, and it appears probable that the two diseases have been often confounded.

Appearances on Dissection.—Redness, and even injection of the capillaries, are equivocal signs of inflammation of the heart; so is some degree of softening of that organ, which, although sometimes observed after symptoms which indicated disease of the heart, yet is oftener seen when such signs did not exist; and I am convinced that the state which is usually noted down in reports of dissections, as softening of the heart, is frequently nothing more than the natural progress towards decay. Laennec states, that he has met with only one instance of an abscess in the walls of the heart. The subject was a child twelve years old; the abscess was situated in the parietes of the left ventricle, and might have contained a filbert. In another case of a man of sixty years old, he found albuminous exudation, of the consistence of boiled white of egg, and of the colour of pus, deposited among the muscular fibres of the left ventricle. "The patient had presented symptoms of an acute inflammation of some of the thoracic viscera, without precisely indicating its site. Orthopnœa, and a feeling of inexpressible anguish, had been the chief symptoms." (Page 621.) In the case to which I have already alluded, a deposition of a matter, whether pus or lymph could not be determined, was found near the apex of the heart, in the substance of the left ventricle. I would particularly refer

the reader to Dr Gairdner's interesting case of carditis, recorded in the 2d vol. of the "Medico-Chirurgical Transactions of Edinburgh." The subject of it died of another disease, eight months after the original attack, and the following is an abstract of the appearances in the heart: "Near to the apex of the heart, we found a layer of dense, organized lymph, closely investing a part of the parietes of both ventricles. On attempting to separate a portion of this layer, it was found to be firmly united to the substance of the organ, dipping between its muscular fibres, in the form of dense cellular tissue." (Page 241.) The symptoms in this case were, preternaturally violent and rapid action of the heart, and a sensation of throbbing in the temples, with headache.

Ulcerations of the heart, according to Laennec, have been more frequently observed than abscess, but it would seem they are more common on the internal surfaces of the heart, than on the external. Dr Baillie observes, that although authors have mentioned cases of abscesses and ulcers of the heart, he is persuaded they are extremely rare. (Morbid Anatomy, p. 20.) He also states, that mortification still more rarely takes place. Lieutaud, however, notices it, (tom. 2. p. 33.) Dr James Kennedy, lately of Glasgow, has published a most interesting paper upon this subject, in illustration of a case of acute carditis, terminating in gangrene of the heart, in the "Medical Repository" for April 1824, which is well worthy of perusal. It contains sufficient proof, not only of the author's skill in pathological inquiries, but of his critical acumen. On dissection, it is stated, that "twenty ounces of turbid serum were taken from the chest; it had an impure orange colour, and a fetid smell. The pericardium inclosed four ounces of a fluid in all respects similar. On the internal surface of this capsule, was much vascular net-work, dark, as if composed of injected veins. All parts of the heart, external and internal, exhibited distinct marks of having been the seat of gangrenous inflammation. They were preternaturally flaccid, and dark as the darkest coagulated venous blood; they could be easily perforated by the finger. When thus torn, they exhaled a putrid odour, but no blood exuded from their ruptured vessels. The left ventricle, in particular, was

quite livid, and destitute of its muscular tenacity; it was a little firmer than cerebral structure. When lacerated, it threw out a most offensive smell, similar to the odour of putrescent animal substance. All the cavities of the heart were empty; but the large veins, especially the abdominal, were loaded with grumous blood." (Page 279.)

Treatment.—A similar mode of treatment as that recommended in pericarditis is to be followed. The result of Dr Gairdner's case, is a strong proof in favour of large bleeding, which prevented the diseased action from spreading, and preserved life, even after extensive disorganization had taken place. He took thirty ounces of blood from a vein in the arm, on the 16th March; on the 17th, it was repeated in the same quantity; and again on the 18th, the Doctor states, he "ventured" on another equally "copious" abstraction of blood. During that night, from the shifting of the bandage, the patient lost several ounces more, and subsequently had leeches applied.

CHAP. IV.

HYPERTROPHY OF THE HEART.

By Hypertrophy of the Heart is understood, a thickening or increase in the muscular substance of one or more of its cavities. This may perhaps be considered rather as an increase of nutrition than a real organic disease; that is to say, in its simplest state it may continue for an indefinite period; it is seldom fatal of itself, and proves so, either from the causes which have given rise to it, or from the diseases which it may induce in other organs.

Hypertrophy frequently exists without complication; at other times, we meet with it combined with dilatation and contraction of the cavities of the heart, as well as ossification of the valves. In this class of diseases, as well as in most others, we are constantly to bear in mind, that when one organ labours under disease, others in a short time give evidence of participation.

I shall describe this disease in its most simple state, and point out the leading symptoms which attend it; but young practitioners should be aware, that they must not invariably expect to meet the disease under the precise form in which it may be delineated. After due deliberation, with regard to the different arrangements which have been adopted in treating of hypertrophy, I give a decided preference to that of Bertin, who describes it under three forms: 1. Simple hypertrophy,

without change in the capacity of the cavities of the heart; 2. With the increase in the capacity of the cavities of the heart,—the *active aneurism* of Corvisart,—the *hypertrophy with dilatation* of Laennec, which is the most common form of the disease; 3. Hypertrophy with diminution in the capacity of the cavities of the heart.

Hypertrophy is more common in the left ventricle than in the right, and is occasionally met with in the auricles. When the whole heart is affected, it sometimes attains an enormous size, appearing, when the thorax is opened, to fill both sides of the chest.

In the natural state, the heart is about the size of the closed fist of the subject, not tightly clenched. The thickness of the walls of the left ventricle is more than double that of the right, and of sufficient firmness not to collapse when cut into. The right ventricle collapses when divided; it is a little more capacious than the left, and the columnæ carneæ are of a larger size.

In the diseased state, we sometimes find the heart three or four times the above-mentioned size; and when the left ventricle is affected, its walls are frequently more than an inch, or even an inch and a half in thickness; the greatest increase is at the base of the heart, decreasing towards the apex, although this rule is occasionally reversed. The columnæ carneæ also acquire a proportionate enlargement, and even the septum between the ventricles participates in the disease.

The capacity of the ventricle is sometimes so much diminished, that Laennec informs us, in a heart double its natural size, he has seen it so small, as scarcely to contain an almond in the shell. In such cases, the apex of the heart is blunted, and formed entirely by the left ventricle, which appears to constitute the whole of the heart, the right looking more like a process of it.

In hypertrophy of the right ventricle, the thickening is never so great as in the left, and it is more uniform.

The causes of the disease have been already alluded to. The increase of the nutrition of the heart, has been compared to that of the muscles of the arm of the blacksmith; and all causes capable of increasing the action of the heart, have been

assigned as the sources of hypertrophy; such are all affections of the lungs, impeding or retarding the circulation between the right and left cavities of the heart; and there can be no doubt, that individuals of a sanguine and plethoric temperament are most subject to this disease.

Signs of Hypertrophy of the Left Ventricle.—The general symptoms have been already mentioned. In this disease the patient is less subject to violent and sudden attacks of palpitation than in dilatation, but he is more sensible of the constant action of the heart. On applying the hand to the chest, it is met by a strong and extended pulsation, sometimes as if the whole heart were raised against the hand, at other times only its apex. The pulse is generally full, strong, and vibrating, appearing as if the artery were constantly distended. The raising of the ribs is quite visible, and in hypertrophy with increase of capacity, the action of the heart can be heard at some distance from the patient.

The sound on percussion is dull, and on applying the stethoscope between the cartilages of the fifth and sixth ribs, a very strong impulse is felt, sufficient to raise the head of the observer, and accompanied with a duller sound than natural, —it is more prolonged in proportion as the thickening is more considerable. The contraction of the ventricle is very short, and productive of little sound, unless the disease be complicated with considerable dilatation.

We must therefore distinguish between simple hypertrophy, and hypertrophy with increase in the capacity of the cavity. In the former, the sound is confined to a very limited space; it is scarcely perceptible under the left clavicle, and forms a remarkable contrast to the force of the shock. In the latter, the intensity of the sound is increased,—we have the strong impulse as in hypertrophy, and the loud sound as in dilatation. The sound is sometimes so great, as to be heard over every part of the chest. The pulsations of the carotid and other arteries are frequently visible.

Signs of Hypertrophy of the Right Ventricle.—The signs are precisely the same as already described; that is to say, the heart, as explored by the cylinder, gives similar results; with

this difference, that the shock of the heart's action is greater at the bottom of the sternum, than between the cartilages of the fifth and seventh ribs, which is the reverse of what takes place when the disease is in the left side of the organ. This sign, drawn from the place where the heart is heard beating with most force, according to Laennec, is infallible. Lancisi described a swelling and pulsation of the jugular, as a sign of aneurism of the right ventricle. This symptom was rejected by Corvisart, who says he has seen it when hypertrophy existed on the left side. Laennec differs with Lancisi, and informs us, that he never met with it in hypertrophy of the left ventricle, unless there existed at the same time a similar affection of the right; while he has uniformly seen it whenever the right side was affected in a severe degree. We may, therefore, regard this as a pretty certain sign.

Hypertrophy of the auricles, considered as a disease, is not of frequent occurrence, and therefore is not of so much importance,—it appears to be always consecutive to some other affection,—either to a disease of the valves, or some obstacle to the circulation. If Laennec's notions respecting the sounds produced by the heart's action be incorrect, it follows that many of his stethoscopic indications must also be erroneous. It is believed by some, that violent impulse of the heart depends upon hypertrophy of the auricles; I have no doubt that occasionally this is the case, but I am more inclined to attribute this phenomenon to the increased bulk of the left ventricle.

Hypertrophy is sometimes primitive, but is perhaps more frequently consecutive to some other disease. It commonly proves fatal by the effects produced on other organs, more especially the brain and lungs.

No fact is better ascertained, than the influence which hypertrophy exerts in producing apoplexy, as well as softening of the brain. The attention of practitioners has been particularly called to this, by Le Gallois, Richerand, Bricheteau, Lallemand, and Bertin; and it is somewhat surprising to find a learned editor of the Edinburgh Medical Journal, informing us in 1828, that "*no pathologist has particularly examined those effects, to which the diseases of circulation give rise*

in the cerebral organ," appearing to claim this as a discovery of his own, as well as the making of incisions in whittloes! There never were individuals who better understood the mystery "*of hanging great weights to small wires,*" than the editors of this *debilitated and puffing* periodical.

Treatment.—Whether the analogy between hypertrophy of the heart and the muscles of the blacksmith's arm, be true in a pathological sense or not, I could quote a number of cases in which it is supported by the result of medical treatment; viz. venesection, the strict antiphlogistic regimen, and perfect rest. Of all diseases of the heart, hypertrophy is that in which the starving treatment of Valsalva will in general be found most advantageous, even when complicated with some degree of dilatation.

The lancet is necessary in those cases only in which we are obliged to diminish plethora more quickly than can be done by diet and purgative medicines, and reduce the violent action of the heart, when danger is threatened to the brain or lungs. It is necessary to keep the patient quiet, with respect to bodily and mental exertion, and to prevent him from speaking. Great benefit is frequently obtained from the occasional use of a weak solution of antimony, so as to produce a slight degree of nausea. He should sleep in a well-aired apartment, remote from every noise, and under as few bed-clothes as possible. With respect to his diet, it will be sufficient to say that it ought to consist of biscuit or toasted bread, in such quantity as will barely keep soul and body together. The quantity of fluid should also be regulated, and must at once be considerably reduced. Should he complain of hunger, or be inclined to take liberties with himself, he may be readily enough controlled by two or three additional doses of antimony, which for that purpose should be given in different forms,—sometimes in solution, to which substances may be added to change the colour,—sometimes in powder, and sometimes in the form of pill. If there be any pain in the region of the heart, the occasional application of leeches is advisable. The length of time necessary to persevere in the use of this restricted regimen and treatment, must entirely depend on the severity of the symptoms, the nature of the disease, and

the prospect we may have of being able ultimately to cure the affection. I have seen this plan beneficial within a few hours, particularly in two cases. The subject of one was a physician, whose complaints had been gradually stealing on for many months; his hair dropped out; he became emaciated; he felt considerable debility, with impaired appetite; his nights were restless; but I was not sent for till dyspnœa and oppression in the chest were so great as to threaten speedy death. I found the impulse of his heart very violent, probably the organ was in a state of hypertrophy, and he was threatened with hœmoptysis. After bleeding him to sufficient extent, he was put under the antimonial treatment, and starved; notwithstanding which, he began to increase in flesh and strength as soon as the antimony was omitted, and he had perseverance enough to live for a considerable time on two biscuits a day, taking only as much fluid as was sufficient to enable his stomach to digest them. In the course of some time, he was allowed to take a little fruit, which disagreed with his stomach, produced indigestion and flatulent distention, and occasioned a temporary return of the former symptoms, proving in a remarkable manner, the necessity of keeping the state of the stomach and bowels constantly in view, when treating diseases of the heart; and I so heartily coincide with the excellent remarks of Dr Forbes on this subject, that I cannot forbear quoting his words. "One great principle," says he, Note, p. 687, "is of paramount importance; it is the removal of all disorders in other organs, which can act as a source of irritation to the heart; I would here add, that from its powerful influence (gastric irritation) in stimulating the organs of circulation to increased action, its previous cure becomes essential to the success of our measures for remedying the disease of the heart."

This gentleman gradually recovered, and in nine months was able to accept a medical appointment in India;—at the period of his departure he appeared in perfect health, had recovered his flesh and appetite; he lived like other people, and there was no unusual impulse in the region of the heart. I received two letters from him after his arrival in Calcutta, but the event happened which was much to be apprehended. The

excitement produced by the heat of climate, and mode of living, soon made an impression upon his frame. He was at length obliged to leave India, and died on the homeward passage.

The other case to which I have alluded, occurred in the person of a gentleman who had been indisposed for six months; and although the case was complicated with dilatation, and perhaps disease of the valves, he felt the benefit of the treatment in a few hours, and enjoyed sound sleep that very night, for the first time since his illness. He increased in strength and flesh; the impulse of the heart daily declined; the agony which he felt in the chest, and outwards to the arms, ceased; cough, dyspnœa, and expectoration, with which he had been affected from the commencement of his illness, disappeared after the third day from the beginning of the treatment. This gentleman was able in the course of a few months to undertake a long journey to the south-west of England. This he performed without inconvenience. He was distinctly told, however, that he could not be completely cured, but might expect to be greatly relieved, and his life preserved for many years, provided he attended to his diet, and used proper precautions. Soon after his arrival in England, he fell under the care of one of those medical men who practise by routine, who have no pathological knowledge, but are never at a loss to give a name and local habitation to every disease that comes before them, who have a nostrum to cure every symptom, and who furnish their patients with eighteen draughts, three dinner pills, and a red mixture for three days consumption!! Upon a first visit, he denounced the opinion of the "Scotch doctor," and declared that the patient's only complaint was "bile." He removed all my restrictions, told the patient to move about, to walk up the hills, which would *open his chest*, and to eat beef-steaks, and drink porter. All this was mighty pleasant news to the poor patient, who was very fond of the pleasures of the table. But he was in the first place put under a course of mercury, during which he was confined to the house on account of the severity of the weather. Under this treatment considerable amendment took place, and the most positive assurances were given of a speedy and a permanent cure. The most flattering accounts were received by the patient's

friends in Scotland, who are people in the highest class of society; but my invariable answer was, that the amendment could not be permanent. Some months passed over, and still favourable reports were made. At length, having occasion to be in London on business, my desire to see the patient was so great, that I undertook two long days' journey solely for that purpose. On my arrival at his house, (at half-past ten o'clock at night,) I found he was out at supper. When he came home, he said he was pretty well, but felt the "old sensation always in his chest." On applying my ear to the thorax, I perceived a strong throbbing impulse over every part, with a loud rushing or blowing sound. It was a painful duty to be obliged to open the eyes of his affectionate wife to the dangerous state of her husband's health, and the uncertainty of his surviving even a week. Fortunately for her future peace of mind, she believed me; and to shorten a long story, he died in less than three months. The correctness of my opinion was afterwards ascertained, and admitted by all parties.

By degrees, we are to allow the patient to return to an animal diet, which is better, when used in moderate quantity, than having his stomach filled with farinaceous food; and in order to prevent either a wilful or an accidental error, the exact quantity of food allowed in twenty-four hours should be given by weight, and liquids by measure.

The antimony ointment is to be rubbed over the region of the heart, and irritation on the surface should be supported for a few weeks, every now and then, while the cure is going on. I think it best not to have recourse to it, however, till such time as the restrictions of diet are about to be a little relaxed.

CHAP. V.

DILATATION OF THE HEART.

Dilatation of the heart consists in an enlargement of the capacity of one or more of its cavities. Dilatation, complicated with hypertrophy, has already been described. In the morbid alteration now to be mentioned, the walls are much thinner than natural, commonly conjoined with a degree of softening of the muscular substance, and some change in the colour, which is either more purple, or paler than natural. This disease is the "*passive aneurism*" of Corvisart. According to Bertin, who has written a valuable work on diseases of the heart, there are three forms of dilatation:—1*st*, Dilatation with the thickening of the walls of the heart, which has already been treated of, under the title "Hypertrophy;" —2*d*, Dilatation with thinness of the walls;—and 3*d*, Dilatation without any change in the walls. Bertin has truly observed, that the orifices of the heart frequently partake of the dilatation of the cavities, insomuch that the valves become insufficient to close them.

Dilatation is sometimes confined to one ventricle, though it more commonly affects both. The heart is more dilated in breadth than in length, and therefore assumes more of a rounded form than natural.

The causes of this disease are ascribed by Bertin to some obstacle in the course of the blood, such as disease of the valves: this must be admitted; but probably the most fre-

quent cause is, as stated by Laennec, a congenital disproportion in the parts of the heart. In some cases, the *foramen ovale* is found open to a considerable extent.

Symptoms.—Patients affected with dilatation, are more liable to sudden attacks of palpitation and dyspnœa, on any violent emotion, than those with hypertrophy; the pulse is commonly soft, weak, and undulating. Weak action of the heart, whether owing to dilatation or not, frequently produces alarming symptoms, such as vertigo, loss of memory, syncope; together with nausea, vomiting, and constipation.

J. M. aged 29, a medical student, very tall, stooping in his gait, of a fair complexion and light hair, had been affected for about a year with symptoms which he attributed to disorder of the stomach. He complained of a feeling of distention and weight in the epigastrium. Occasionally, he was troubled with a short, dry cough, and palpitation of the heart, excited generally by any sudden or unusual exertion. The pulse was naturally slow and full.

These symptoms gradually become more constant and troublesome. In July and August 1823, he had occasion to exert himself considerably in his professional pursuits, and the feeling of uneasiness in the epigastrium, and palpitation at the heart, proportionally increased, but appeared to him to be constantly relieved, when his bowels, which were generally costive, became relaxed by the use of medicine.

In September, his complaints were much aggravated; towards evening, the short, tickling cough, became exceedingly troublesome, and, when he placed himself in the recumbent posture, he was frequently seized with feelings of suffocation, which forced him to sit up. The difficulty of breathing, accompanied by a sensation of constriction in the breast, was at times considerable; and the paroxysms which seized him during the night, he compared to asthmatic fits. He was frequently obliged to rise during the night; and when he did sleep, was often suddenly awakened by a sense of suffocation. Towards morning, he became easier, and enjoyed some rest. During the day, he was comparatively well. He was thin and pale, but complained little, except of want of rest. He went about his medical studies with ardour and assiduity;

but on making any unusual exertions, he was immediately seized with the short cough, and, on mounting a flight of steps, or an ascent of any kind, he was often obliged to stop suddenly. On walking quickly, his strength failed, and he complained that his limbs refused to perform their office. On examining the pulsation of the heart at this period, it appeared to be placed immediately under the hand; instead of the usual quick and hard stroke, a prolonged pulsatory throb was distinguishable, extending over a larger than usual surface. To the stethoscope, both the left auricle and ventricle gave a clear, sharp sound, distinctly observable, also, under the clavicle of the right side.

In October and November, he became gradually worse. The paroxysms at night were more frequent and more troublesome; and he was generally obliged to sleep in the sitting posture. He sometimes, however, passed days and nights pretty comfortably, and he believed that this was principally the case when his bowels were freely opened.

In December, the oppression and sense of fulness in the epigastrium increased to so great a degree, as to render the slightest pressure on the part insufferable. The veins of the neck were observed, at this time, to be full, and a strong pulsatory motion was given to them above the clavicle. He still continued his studies with ardour, and refused to confine himself; but on mounting stairs, or walking quicker than usual, he became completely exhausted, and was often obliged to rest himself. On the 12th December, he felt much worse, and weaker. On the 14th, a material change for the worse had taken place; his face was pale and anxious, the lips blueish, and the ancles œdematous;—still he conversed cheerfully, and without the least alarm. The pulse was small, and about 120. On applying the hand to the region of the heart, the usual quick, hard beat, was not to be felt; but there was a kind of violent pulsatory struggle perceptible over a considerable space. A physician saw him, and the medicines he recommended were employed with great apparent benefit. Mr M. thought himself better; the œdema of the legs disappeared, and the cough became less troublesome;—the palpitation at the heart had subsided; and he complained only of

a sense of weight in the epigastrium. During the day, he was tolerably well, but about ten at night, he became hot and exceedingly restless, continually shifting his posture in the vain hope of repose. This continued for some hours, when he generally sunk into a slumber, and continued till morning bathed in a copious perspiration. On Friday 26th, he was much worse. At 4 P. M. he was sitting up and conversing cheerfully; but his legs were more swollen; his pulse irregular; the pulsation of the heart could not be felt in the usual place, and an undulatory pulsatory feel was communicated to the hand, when placed on the epigastrium. About 8 o'clock, his breathing became oppressed, he sunk into slumber, and died without a struggle.

The body was examined about sixty hours after death. A great quantity of bloody serum seemed to have escaped, and still continued to flow from the mouth and nostrils. The body was much swollen, and the cellular membrane was distended with air; a quantity of serum flowed out on making the several incisions. About a pound and a half of bloody serum was found in each cavity of the thorax. The pericardium contained about three ounces of fluid. The heart was more than three times its usual size. It was of a deep brown colour, and destitute of fat. On examination, the right auricle was greatly increased in capacity, and extremely thin in its walls. The *foramen ovale* was sufficiently open to admit the point of the little finger into the left auricle. The right ventricle was nearly natural, as was also the left auricle. The left ventricle was of an enormous magnitude, and more resembled a large bag than a ventricle of the heart. It was more than three times its natural size, its walls of extreme thinness, and the fleshy columns widely separated from each other. The lungs were more than usually congested with blood; but they, as well as the viscera of the abdomen, were perfectly healthy.

The above case is interesting in many respects, and among others, in having the *foramen ovale* open, which was, in all probability, produced by the enormous dilatation of the right auricle; it is worthy of remark, that the communication be-

tween the right and left auricle existed without producing the diseases termed Cyanosis or Blue Skin.

Signs of dilatation.—The only certain sign is the clear sound of the heart with deficient impulse. Laennec says, the degree of distinctness of the sound, and its extent over the chest, are the measure of the dilatation; thus, when the sound of the contraction of the ventricles is as clear as that of the contraction of the auricles, and if it be at the same time perceptible on the right side of the back, the dilatation must be extreme.

Signs of dilatation of the Left Ventricle.—A clear and sonorous sound, between the fifth and seventh ribs of the left side.

Signs of dilatation of the Right Ventricle.—The sound is heard somewhat better towards the bottom of the sternum, than in the region of the heart; to which may be added, in the language of Corvisart, a "greater degree of oppression, more marked serous diathesis, more frequent hæmoptysis, and a more livid state of the countenance," than in affections of the left ventricle.

According to Laennec, the most constant and characteristic of the equivocal signs of this affection, is, an habitually swollen state of the jugular veins without pulsation.

The following statements are extracted from the work of Senac (Traité de Cœur, tom. 2.)—"*Il est certain que les dilatations des diverse cavités (du cœur) peuvent être distinguées. En genéral les battements du cœur ne sont pas violents quand le ventricle droit, ou le sac de ce ventricle, sont extremement dilatées; a peine les dilatations produisent elles des palpitations; dans beaucoup de cas, les malades sentent seulement un grand poid dans la region du cœur,*" page 327. And again, "*Les dilatations du ventricle droit et de son oreillette produisent toujours des battements dans les veines du col*——" "*L'absence de ces battements, lorsqu'une dilatation du cœur est constatée, établit cette dilatation dans le ventricle gauche,*" &c. Page 328.

My attention has been frequently attracted to dilatation of the auricles, since the publication of the first edition. In several instances, the auricles, instead of forming a small part of the whole organ, were of equal size with the ventricles; in

others, the proportions between auricles and ventricles were reversed—the former being by far the largest part of the heart. I have occasionally found the walls of the auricles much thickened, not only with respect to the muscular structure, but the lining membrane also. In a healthy heart, the lining member of the auricles is considerably thicker and stronger than that of the ventricles; but in the condition of which I am now treating, the contrast is very remarkable.

In concluding this part of the subject, it may be observed, that we have frequently combinations of different diseased states; thus we occasionally meet with dilatation of one ventricle, and hypertrophy of the other; but the comparative exploration of the two sides of the heart will enable us to detect this, after some practice with the stethoscope. In other cases, we have dilatation of one ventricle and the opposite auricle. We also meet with cases in which the parietes of the dilated cavity are thickened in certain points of their extent,—thinned in others,—and in the remaining parts exhibiting their natural structure.

TUBERCULOUS AND OSSIFIC FORMATION IN THE SUBSTANCE OF THE HEART.

Various kinds of accidental productions have been found in the substance of the heart. I shall merely mention the enormous collections of fat which have been discovered about the pericardium and heart, because I have seen this condition frequently in subjects who have died of other diseases, and in whom no affection of the heart had been suspected; at the same time, there are cases on record, in which the muscular structure was so much weakened, and the fibres so much separated by the interposition of fat, that it has appeared to be the cause of impeded action, and occasionally of rupture of the organ.

Ossific depositions in the walls of the heart are avowedly rare. Laennec met with two instances of this formation between the layers of the pericardium; the history of one of the cases, along with the dissection, (at p. 670. of the translation,) is well worthy of perusal. Baillie notices instances

of this nature; one case fell under his own observation, in which the ossification had spread over a considerable portion of the pericardium, (p. 13.) He also says, (at p. 49.) "When a part of the heart is converted into an earthy matter or bone, no morbid symptoms whatever have in some cases been observed; and in others, there has been palpitation of the heart, with difficulty of breathing." But the author does not say that he had ever seen such cases.

I have seen one instance only of tubercular formation in the substance of the heart; Laennec states, that he has seen it three or four times. In the year 1826, some of my pupils were called upon to examine the body of a young woman, who dropt down dead without any previous indisposition. No diseased appearance was found any where but in the heart. On opening the pericardium, it was observed to contain a little serum. The surface of the heart was vascular, and there was some watery effusion beneath the serous membrane at several points. There were also two considerable projections, the largest at the apex of the heart, the other about the centre of the left ventricle; on making incisions at those parts, tuberculous masses were found occupying the whole thickness of the organ, of a soft cheesy consistence, at the apex, to the extent of an inch and a half in diameter, and at the left ventricle to that of an inch.

Upon inquiry, it was found that this individual had led a very irregular life, but had always enjoyed a good state of health.

In my Museum there is a preparation obtained from a cholera subject, in which a considerable portion of the right auricle and ventricle, together with the coronary arteries, are ossified. The previous history of the patient is not known.

ATROPHY OF THE HEART.

Diminution of size is mentioned by most authors who have written upon diseases of the heart. Laennec states, that "the heart, like the muscles of voluntary motion, is clearly susceptible of diminution of size." The hearts of individuals who die of phthisis, are observed to be uncommonly small; Laennec

says, that he has thought he "could recognize a sort of withering of the organ indicative of its loss of volume." On examining the body of a young woman, who died from the effects of a tumour, weighing above fifty pounds, which grew from the fundus of the uterus, and extended upwards, encroaching so much upon the thorax, that the diaphragm on the right side was pushed up as high as the first rib, the heart was found little above half its usual size, and was very much flattened by the pressure of the tumour. Its action had been so much impeded, that the pulse could be scarcely felt in any artery of the body for a considerable time before death. I have another heart in my possession, taken from an adult male, which is not larger than that of a child of six years old. Both coronary arteries were found much ossified. In this case there could be no doubt, that the small size of the heart depended upon the diminution of the nutritive process; the pulse at the wrist was exceedingly small for five or six months previously to death, and during the two last months, it was so weak that it could scarcely be counted. Laennec says, that he has never observed any symptom peculiar to atrophy of the heart. "I may remark, however," he adds, "that several hypochondriacs, who are liable to faintings from very slight causes, gave, under the stethoscope, signs of a very small heart; and we know, moreover, that women, who are much more liable to these attacks than men, have in general smaller hearts." (Page 614.)

RUPTURE OF THE HEART.

We are assured by those who have had the best means of knowing, that this accident is very rare. Laennec thinks that these ruptures are generally produced by previous ulceration of the ventricular parietes, and Bertin is of the same opinion. Laennec states, that it is surprising rupture of the heart does not more frequently happen in those cases of great accumulation of fat, reducing the walls of the ventricles to extreme thinness. According to Meckel, rupture of the heart most frequently takes place at the point of junction between

the aorta and left ventricle; but this does not seem to accord with the observations of others. Bayle assures us, that in nineteen cases of rupture of the heart, fourteen took place in the left ventricle, principally on its anterior side near the apex; three in the right ventricle. In most of the subjects, the heart was remarkably soft, and the substance around the perforation was of a brown colour. Baillie's observations upon this subject are very vague, and not worthy of quotation. I have seen two cases of sudden death, in which the pericardium was found to contain a large quantity of coagulated blood. In one of these, the perforation through which the blood had issued, could not be discovered for some time, and when on the point of giving up the examination, a small rent, just capable of admitting the head of a pin, was found at the root of the aorta, which vessel was somewhat dilated, and its texture injured by incipient ossification.—The subject of the other case was a woman about fifty years of age, who had previously enjoyed a good state of health. The night before her death, she had walked from the south-west extremity of the Old Town of Edinburgh to Newhaven, and back again, a distance of about six miles, and had gone to bed without making any complaint. After a good night's rest, she got up in the morning, and fell down dead soon afterwards, whilst cleaning her shoes. On dissection, the pericardium was found greatly distended with coagulated blood; the aorta, much injured by ossification, was seen greatly dilated near its origin, where a small rupture existed, not above two lines in length.

Bertin mentions two instances of rupture of the auricles, which is more rare than that of the ventricles: in one of these, the rupture was produced by a fall; in the other, it occurred without any perceptible cause, and the heart was enormously loaded with fat.

We are assured by Laennec, that rupture of the auricles, ventricles, and large vessels within the pericardium, is not always followed by sudden death. In several cases, the blood accumulated in the pericardium formed a solid coagulum, and checked for a time the hæmorrhage.

CHAP. VI.

DISEASES OF THE VALVES.

The valves of the heart are liable to depositions of fleshy, cartilaginous, and osseous matter, which increase their thickness, alter their shape, and obstruct the orifices in which they are placed. They are sometimes so much altered in structure, as to be unfit to perform their chief function, viz. to prevent the regurgitation of the blood. The valves at the origin of the pulmonary artery, have a remarkable immunity from these diseases, while they are frequently met with in those at the aorta. The mitral valves are perhaps more frequently found diseased than the tricuspid.

Appearances on Dissection.—Sometimes the points only of the semi-lunar valves are affected; at others, their bases; when they are affected throughout, they are deformed, and often coiled upon themselves; and when in this condition, they have frequently a red fleshy-looking appearance, smooth, and polished. Very often a small cartilaginous concretion is observed in the points of the semi-lunar valves, which may be considered as enlarged corpora sesamoidea, but which can scarcely impede the circulation, until they become of considerable size. Sometimes these valves seem, as it were, to be encrusted with osseous matter; and I have seen instances in which it was impossible to trace the inner membrane over the osseous projections. We sometimes find small fleshy vegetations resembling warts.

The cartilaginous induration of the auriculo-ventricular valves, is sometimes confined to the fibrous bands found in its base. In this case, it has the appearance of a very smooth, though unequal ring, diminishing the size of the orifice; it is sometimes of a semi-cartilaginous consistence; at others, it is formed of perfect cartilage. The same kind of appearances are occasionally met with in other parts of these valves, but those situated at the bases and points are usually the thickest.

The osseous productions are found in the same situations, and are very unequal as to thickness. Like those already described in the semi-lunar valves of the aorta, they are often found projecting from the valve, denuded, and very rough. We are assured by Laennec, that they are not perfect bone, being whiter, more opaque, more fragile, evidently containing a greater proportion of phosphate of lime. They are sometimes situated on the free margins of this valve, diminishing greatly the size of the orifice; indeed, sometimes to so great an extent, as scarcely to admit the blade of a pen-knife, of which there are examples in my Museum. Sometimes, though rarely, the tendinous chords of the mitral valve are affected in a similar manner. In one case, Dr Forbes found three of the pillars of the mitral valve completely ossified through their whole extent, with the exception of a minute portion at each extremity.—(Original Cases, page 133.)

The auriculo-ventricular valves are likewise found studded with fleshy excrescences like warts; they are in general soft, and with difficulty preserved.

When ossification is confined to the free margins of the sigmoid valves, or when the base is affected, if still slightly thickened, the valve may perform its functions provided the middle portion be still sound; but when the disease is extensive, the valves, according to Laennec, grow together, and get incurvated either towards their concave or convex side, in which state they are immoveable, being either fixed on the side of the aorta, or in the orifice of the ventricle.

Symptoms.—These are palpitations and dyspnœa, often to such a degree, as to be called asthma; both these symptoms are increased by quick exercise, or any unusual exertion or emotion. When the disorganization advances to a certain

pitch, the palpitation and dyspnœa increase in frequency and violence; the pulse is weak, small, and thready, and occasionally intermits, which corresponds with intermissions in the contractions of the heart; the feet are observed to become œdematous towards evening. At last, the symptoms denoting impeded circulation augment, the face and extremities become discoloured, the œdema extends to the legs, dropsical effusions take place into the different cavities, and the dyspnœa increases to such a degree, that the patient is obliged to remain in a sitting posture, or bent upon the edge of the bed, in a kneeling position.

According to Laennec, the following stethoscopic signs are observed: "The symptoms of ossification of the mitral valve, are little different from those attending the same affection of the sigmoid. According to M. Corvisart, the principal sign of the former lesion is 'a peculiar rustling sensation, *(bruissement,)* perceived on the application of the hand to the region of the heart.' This peculiar sensation is nothing else than the *purring thrill* already described. It is assuredly very frequently observed in the case of ossification of the mitral or sigmoid valves, when this exists in a high degree; but, as I formerly stated, it may exist when these valves are perfectly sound, and it is almost always absent when the induration is not so extensive as materially to obstruct the orifices. The bellows sound is a much more constant sign; it accompanies the contraction of the left auricle, when the mitral valve is affected, and that of the ventricle, when the induration is in the sigmoid. But even this is wanting when the alteration is not extensive, and as it is, moreover, very common when the heart is perfectly sound, we must lay no stress upon it as a sign, unless it be combined with other circumstances calculated to confirm the diagnosis. Accordingly, when the sound of the bellows, rasp, or file, persists in the left auricle, either continuously or interruptedly, for several months; when it is found only then, and exists even in the greatest quietude; when it is scarcely lessened by venesection, or when lessened, if it still leave behind it a degree of roughness in the sound of the auricle,—or, yet more, when the purring thrill co-exists with this, we may be assured that the auriculo-ventricular

opening is contracted. If the same phenomenon occur under similar circumstances in the left ventricle, we may be equally certain that the aortal orifice is contracted." Three or four times, during the last four years, I have discovered this lesion by means of these signs. Three similar examples, equally verified by dissection, are recorded in M. Bertin's work, (Obs. 49, 50, 51;) and a fourth is given in the collection of cases published by Dr Forbes, (Case vii.) "But," continues Laennec, "if these phenomena exist only for a time, although as much as two or three months; if they accompany the increase of any other nervous or organic disease of the heart, we must not depend upon them as indications of the lesions now in question, since all the facts formerly recounted, prove that these sounds are not produced (as might be imagined at first) by the passage of the blood over a rough or rugged surface, but to the spasmodic energy requisite in the muscular contraction, to overcome the obstacles opposed to it. It follows, therefore, that any other cause besides diminution of the orifices, which occasions contraction of the heart, is equally capable of giving occasion to the bellows sound, and purring thrill; and it is fair to admit, that in the first edition of this work, I laid too much stress upon these two phenomena, as signs of valvular disease. A slight degree of cartilaginous or bony induration of the valves, may exist for a long time without any visible alteration of the heart; or even by proper measures of precaution, and by seasonable bleedings, we may frequently preserve for a long time the life of individuals, who present every sign of considerable contraction of the orifices." —(Forbes' Translation, page 634.)

Laennec appears to have laid too much stress upon the effects of nervous affections of the heart, and in the latter period of his life he became timid and doubtful with respect to his own powers of observation, which enables us to account for the tenor of the above quotation. I believe, however, that these sounds, and more particularly the blowing or rushing sound, may be occasioned by a large quantity of blood rushing with violence through the orifices, even when the valves are sound.

Within these few years, several cases of sudden death have

taken place, even in young persons, and the only morbid appearance discovered upon dissection, was disease of the valvular apparatus.

Treatment.—A similar treatment to that formerly recommended in other diseases of the heart is necessary; viz. to reduce and obviate plethora, to enjoin rest, to avoid every cause which can increase the quantity of blood, and hurry the circulation; and lastly, to moderate violent symptoms by applying leeches, producing contra-irritation, and administering an occasional opiate.

CHAP. VII.

DISEASES OF THE BLOOD-VESSELS.

The first disease of this class which I shall notice, is inflammation of the internal membrane of the heart, and large vessels near it. Since the last edition was printed, I have had much opportunity of examining this part of morbid anatomy. Previous to this, I thought inflammation of the internal membrane of the arteries "*a very rare disease,*" but am now convinced it is by no means uncommon. I have seen false membrane in every stage, from the commencement of a deposition of lymph to its complete organization. There are many specimens of this in my Museum. It appears to me that the atheromatous deposit so often found in the arteries, particularly in the aorta, is frequently produced in this false membrane, and not so uniformly in the middle coat as has been hitherto supposed. Bertin has written to prove that inflammation of this membrane is a common affection. The lining membrane of the heart, and of the large blood-vessels, is sometimes found of a brown or violet colour, and also a bright scarlet. It is a subject of controversy at this moment, whether this colouring is the effect of disease, or of imbibition of blood after death. From my own observations, I am led to conclude, that it is sometimes from the one cause, and sometimes from the other; and I

think our conclusions must depend upon three circumstances: 1*st*, Whether any blood is found near the discoloured portion? 2*d*, Does blood found in the aorta, always impart a colour to its lining membrane? 3*d*, Upon the texture of the part so affected. I have frequently found the aorta of a red, brown, or violet colour, when neither it nor the left ventricle contained any blood; and on the contrary, I have seen the aorta almost filled with blood, partly fluid, partly coagulated, when the inner membrane presented its usual straw colour. When the aorta was discoloured, I have occasionally found the inner membrane soft and pulpy, and readily removed with the fingers; and I scarcely remember to have seen incipient ossification of the aorta, without observing a vivid redness of its internal membrane. This subject ought to be held as being open to future investigation. The next point which has attracted the attention of pathologists, is the exudation of coagulable lymph. It is stated, that this has actually been found; Burns, for instance, distinctly describes it; Laennec says, that he has observed false membranes of small extent, strongly attached to the walls of the auricles. The next subject worthy of attention is ulceration. Laennec seems very much inclined to doubt the existence of ulcerations in this delicate membrane; he supposes the parts left by the separation of the bony incrustations of the aorta, to have been mistaken for ulceration; he states, however, that small pustules have been sometimes met with beneath the inner membrane of the aorta, and which have discharged their contents into its cavity; and he asserts, that it is probable that what are called ulcers of the aorta, are formed in this manner, being the consequence of inflammation of the middle coat of the arteries, or of the fine cellular substance which unites this to the inner coat. In quoting these statements, I have to remark, that Laennec appears to be determined not to admit that inflammation of these parts can exist, and that he has manifested too much of the spirit of a special pleader. The last point which some individuals suppose indicative of inflammation of the inner membrane of the heart and blood-vessels, is the formation of concretions, well known by the name of *polypi*. One set of pathologists maintains, that they are the result of previous inflammatory action,

which another denies. It is a most interesting question in pathology, and therefore deserves minute investigation.

Since the publication of the first edition, two dissections have taken place in Edinburgh, which set this question at rest for ever,—several polypi organized and partially ossified, having been found in the right auricle in one case, and several polypi containing pus in the other. I am well aware that polypi, which have been termed "*organized*," have been frequently observed, and that injections have been thrown into the vessels; but doubts have been entertained on the subject, and the appearance of vascularity has been variously accounted for. The following is a short sketch of the first case above alluded to, and the appearances on dissection :—A young woman of amiable dispositions, and regular, industrious habits, died after several years illness. I was requested to visit her some years before her death ; she was then labouring under cough, quick and anxious breathing, palpitation, emaciation, and hectic fever. One or both lower extremities were affected in a similar manner to that observed in phlegmasia dolens. Her appearance was so unpromising, that I thought she could not long survive ; but she rallied, and for a time became better, but soon relapsed again ; in fact she became better and worse at times, occasionally much distressed with dyspnœa, cough, pain and distention of the lower extremities, and febrile symptoms. It was thought that her lungs were affected, as the sound of respiration during a severe paroxysm was not audible in some parts of the chest. This opinion was subsequently abandoned, when it was supposed that the functions of the lungs were embarrassed in consequence of some impediment in the circulation. The action of the heart appeared natural, but the sounds and impulse were weak. There was no irregularity of pulse. Nothing afforded her any relief but venesection ; and during her illness, I am informed, she was bled above one hundred times. The uneasiness produced by the tense and swollen condition of the lower extremities, was greatly eased by repeated punctures, when a quantity of serous fluid was discharged.

On dissection.—The lungs were somewhat œdematous, but appeared otherwise sound. The heart did not appear to be

above the natural size; the right auricle was found almost filled by a large hard mass, which adhered by a broad margin to the superior part of the auricle, while its inferior portion projected into the corresponding ventricle; it was tightly held in this position by the tricuspid valve. The superior and inferior portions of this mass were converted into osseous matter, and felt hard to the touch. The centre part was in appearance like a hardened coagulum of blood; and when the preparation was recent, there were thin ossific scales seen running in a longitudinal direction every where over the surface. In the same auricle, there were three other, but smaller, masses. One was like a coagulum of blood, and adhered to the superior part of the auricle, between the orifices of the pulmonary artery and superior cava; another was small and carneous, attached to about the centre of the auricle, but which was broken off, and lost during maceration; its base, however, is still to be seen in the preparation; the third mass has not been examined. It lies deep in the auricle below the large ossified polypus, and we were fearful of destroying the attachments of the latter to the heart. The inguinal veins and the vena cava were found distended with hard coagulated blood; on minute examination the coats were found in a healthy state, perhaps somewhat thickened, but the contents adhered firmly to the sides of the vessels. In some parts, particularly on the right side, the contents of the veins were organized, completely obliterating the vessels.

It does not appear that this condition of the lining membrane of the heart and arteries is indicated by any particular symptoms, although some assert that it is the cause of inflammatory fever.

OSSIFICATION OF THE ARTERIES.

The morbid condition which goes by this name, belongs to the class of imperfect ossifications. These seem to be produced in two ways;—1*st*, By soft cartilaginous depositions, which are gradually converted into ossifications by the deposition of small calcareous spots, which gradually extend. 2*d*, By the deposition of a soft powdery substance without any carti-

laginous formation; this substance becomes gradually converted into ossific incrustations. Occasionally, ossified spots are found only here and there, although sometimes the whole vessel is affected. Some pathologists imagine, that this formation invariably takes place between the inner and middle coats, and is not connected with inflammation,—this appears to be Laennec's opinion; others maintain, that it is the consequence of inflammation. After careful observation, I have reason to believe, that artheromatous and osseous deposits are the product of inflammation, and that occasionally they are formed in the situation mentioned; but that they are sometimes found in a false membrane, thrown out by inflammatory action of the internal coat of the arteries, admits of no doubt. When these depositions take place between the proper coats of an artery, the inner membrane in many parts is often eventually removed, exposing the bare ossified surface. This formation is frequently the cause of aneurism. All arteries do not seem equally disposed to take on this diseased action. The aorta, at its origin from the heart, is most frequently found affected, then the arch, and the descending aorta, the disease attacking the angles at which the vessels branch off, in preference to other parts. The arteries of the brain are very frequently found diseased in cases of apoplexy; I have seen the most minute vessel that could be traced in the brain, in this condition; and on one occasion, the circulation on one side of the circle of Willis was completely obstructed from the ossification of the vessel. The pulmonary artery, and the arteries of the superior extremities, would seem to enjoy a singular immunity, whilst those of the lower extremities are often affected. Ossification of the blood-vessels must influence the functions of various organs. I possess a beautiful preparation, shewing its effects upon the kidney,—one emulgent being almost obstructed by ossification, the corresponding kidney is in a state of atrophy.

ANEURISM.

There is no disease which shews the absurdity of the division of medicine into physic and surgery, more than this.

When an aneurism is within reach of the knife, then it is called a surgical case; if otherwise, it is handed over to the physician. All writers describe aneurisms of two kinds,—the true and the false. I can join Laennec in stating, that "true aneurism of the ascending portion and arch of the aorta is very common." I have seen it more frequently in such a situation than the false aneurism; indeed, Laennec is of opinion, that false aneurism of the ascending aorta, or its arch, rarely, if ever, exists, unless formed by a rupture of the inner coat of a true aneurism, after it has acquired a certain size; at least, he states that he had never met with any other species of false aneurism in that situation, but that consequent to the true or simple dilatation of the part. The abdominal aorta is also the seat of aneurism: and the arteries of the brain are not exempt. Aneurisms of the aorta exist in various degrees, from slight dilatation, up to the size of the head of a full grown fœtus. The vessel is found in one of three states;—1*st*, The walls more or less converted into ossific matter, looking scabrous and irregular, portions, in scales, being easily separated; in many instances, these scales are found loose, and already more or less detached;—2*d*, That in which the whole of the coats of the aneurism are entire, much thickened, and cut under the knife like fibro-cartilage, having very much the same appearance:—3*d*, That in which a natural cure has been effected by the deposition of thick layers of coagulable lymph, filling up the aneurismal sac, leaving sufficient space for the passage of the blood:—and 4*th*, That in which a portion of the aneurismal sac is entirely awanting, in consequence of long continued pressure on surrounding parts; so that sometimes a portion of the lungs, and even the spine itself, has formed a part of the aneurismal tumour.

Aneurisms of the aorta produce various effects on the neighbouring parts, according to their size and situation. Laennec assures us, that simple dilatation, when in a moderate degree, hardly produces any effect; but that the most inconsiderable false aneurisms may give rise to very serious disorder. The first and most common of these effects is compression of the heart and lungs, by impeding the circulation and respiration. When the aneurism is in contact with

the lungs, it most commonly merely compresses them; sometimes, however, the substance of these organs gives way, and the aneurism, when it bursts, pours its blood directly into the air-cells; three remarkable cases of which I have already related when treating of hæmoptysis. Frequently the aneurism compresses the trachea, or one of the bronchial trunks, which it flattens and eventually destroys, and death ensues by a species of hæmoptysis from the rupture of the tumour. The same occasionally, but not so frequently, happens to the œsophagus. Sometimes the aneurism bursts into the pericardium; two cases of this are also quoted, (page 50.) Laennec states, that he never met with an example of it. The left cavity of the pleura, however, is stated to be by far the most frequent situation into which the rupture takes place. Laennec quotes a case recorded in the Bulletin de la Faculté de Medicine, in which an aneurism of the aorta burst into the pulmonary artery. He mentions a case where the thoracic duct was compressed and destroyed; and Corvisart notices a fatal instance from compression of the superior vena cava. I have seen a preparation of aneurism of the abdominal aorta, which communicated freely with the vena cava. A preparation is in my Museum, in which the splanchnic nerve is involved in the aneurismal tumour. This might account for the violent epigastric pain, nausea, and want of appetite, experienced for a series of years by the unfortunate man. Aneurisms often destroy a large portion of the vertebral column, and there can be no doubt that this destruction is the effect of interstitial absorption, not of caries. On the side next the vertebræ, the sac is occasionally completely destroyed, and, to use the words of Laennec,—"the circulating blood is bounded by the naked bone." Several instances of which occurred in my practice.

Aneurisms of the ascending aorta and arch, sometimes destroy portions of the sternum by their pressure, so as to be at length covered only by the integuments. Aneurisms of the arch of the aorta, and of the innominata, occasionally project above the sternum.

There is no complaint more insidious than the one under consideration; and many a sufferer has been supposed to be nervous, or hypochondriacal and fanciful, who was found, upon

dissection, to have been affected with ossification of the arteries, or perhaps an internal aneurism. Laennec states, that aneurisms of the aorta cannot be detected till they shew themselves externally, and often the first indication of such an affection is the instantaneous death of the individual, from the effusion of blood into surrounding parts. The symptoms which are sometimes observed, are, oppression in the chest, dissimilarity of the pulse at the wrists; a loud whizzing or rushing at the top of the sternum, perceptible to the hand; obscure sound on percussion; rattling in the throat; and dragging down of the larynx, when the tumour compresses the trachea. In noticing these symptoms, he observes:—"In the present state of our knowledge, there assuredly exists no certain means of ascertaining the existence of this disease, until it shews itself externally. Even when the aneurismal tumour has made its way through the parietes of the chest, it is not always distinguishable from tumours of a different kind." And in another place, he distinctly asserts that his experience has been insufficient to enable him "to say how far the difficulty of diagnosis is likely to be removed by the use of the stethoscope." From my limited experience on this subject, it behoves me to speak with very great diffidence; but the little knowledge I do possess, induces me to join M. Bertin, who conceives that Laennec has undervalued the stethoscope in detecting aneurisms of the aorta. Along with the symptoms stated above, it may be mentioned, that persons labouring under diseases of this description are generally observed to be very restless and impatient.

The symptoms must vary considerably according to the size, shape, and situation of the aneurismal tumour. It may press upon the spine, and occasion violent pain in the back, with weakness and anomalous nervous affections;—it may press upon a principal bronchial tube, and create dyspnœa, or produce, by pressure, absorption of a portion of the lungs, and occasion dyspnœa, cough, and even hæmorrhage. Or it may compress the œsophagus, and produce difficulty in swallowing. All these circumstances are well illustrated by dried preparations in my Museum.

Stethoscopic Signs.—Strong beatings synchronous with the

pulse; in general, a single pulsation is felt, which Laennec terms "simple," in contra-distinction to the pulsation of the heart, which is double. There is a greater impulse, and a louder sound, than the mere contraction of the ventricles produce. The single pulsation is generally accompanied by the bellows sound, "*bruit de soufflet;*" these vary in situation, according to the site of the tumour. If the aneurism press upon the air-passages, a peculiar hissing sound will also be observed during the act of respiration or speaking. When the tumour is large, the chest at that part will sound dull upon percussion, and sometimes even the hand placed upon the part, will convey a vibrating sensation to the observer. Still, however, we must be cautious in pronouncing a diagnosis, as I have lately seen several cases in which, from other causes, one pulsation only was heard; which appears to me to be produced by the long-continued action of one set of cavities, masking the sound of the other. Laennec speaks very confidently with respect to one point, which I shall give in his own words:—"If we find under the sternum, or below the right clavicle, the impulse of the circulatory organ, isochronous with the pulse, and perceptibly greater than that of the ventricles examined in the region of the heart, we have reason to suspect dilatation of the ascending aorta, or arch,—the more so, as it is extremely rare to feel the impulses of the organ of circulation beyond the region of the heart, even in cases of the most marked hypertrophy. If this phenomenon be found constant, after repeated examinations, we may consider the diagnosis as certain." Bertin, in his work on diseases of the heart, states, that it is not by the pulsations that an aneurismal tumour is to be detected, but by the great noise which accompanies them.

Treatment.—It is very difficult to give any general directions for the treatment of internal aneurism, further than that quietness of body and mind should be enjoined, together with attention to the bowels, and a light and rather dry spare diet. If there be signs of plethora, it should be diminished by a moderate bleeding; if there be any local pain, we are to consider whether it will be most advisable to subdue it by the application of leeches, a contra-irritant, or by the exhibition

of an opiate. From the situation of an aneurism of the aorta, and its connection with neighbouring parts, we see at once how the functions of the lungs may be impeded by mechanical pressure, independent entirely of the obstruction in the circulation;—how the brain may be affected by impeding the return of blood from the head;—and, also, how deglutition may be rendered difficult and even painful.

INFLAMMATION OF VEINS.

It would appear that we are as yet very much in the dark respecting the functions which the venous system performs, independently of returning the blood to the heart; and I feel convinced that we have as yet no idea of the large share which inflammation of arteries and veins has, and particularly the latter, in different acute and chronic diseases. Many surgeons have yet to learn, that much of the want of success attending surgical operations, depends on inflammation of veins, which they too frequently and unnecessarily tie.

Inflammation of veins may be produced by external injuries and surgical operations, even by the slight operation of phlebotomy. When saline injection into the veins was first proposed in cholera, one of the objections that naturally suggested itself, was the danger of inducing phlebitis. But it is remarkable that, with the exception of two or three slight cases, our fears were proved to be groundless, although very considerable liberties were taken with the veins. Some forms of rheumatism are nothing more than inflammation of veins; and I believe the great majority of cases which are supposed to be inflammation of absorbents, will, if properly investigated, prove to be inflammation of veins. The great danger appears to depend on the tendency which the inflammation has to extend itself towards the heart.

Symptoms.—Pain in the course of the vein increased on pressure; tension; swelling and inflammation of the cellular tissue in the neighbourhood, which at last involves the whole limb, when the disease frequently goes by the name of erysipelas, or diffuse cellular inflammation. When the vessel is

near the surface, a red line follows its course, which feels knotty here and there; the limb cannot be moved without intolerable pain; abscesses frequently form in various parts, when the affection is often called phlegmonous erysipelas. I do not assert that erysipelas is always produced by inflammation of the venous system, or that inflammation of a vein will always extend to the surrounding parts, and produce erysipelas; but morbid dissections have convinced me, that these circumstances not unfrequently take place.

The combination of symptoms denominated fever, takes place, and increases with the disease, and it is too often termed typhus; the circulation is seriously affected; the head suffers, and early delirium often occurs.

Inflammation of veins terminates in what is called resolution; that is to say, it is cured without injury to their structure, or to that of surrounding parts. Suppuration is said to be the most common result of inflammation of veins; but it does not appear to me quite certain that pathologists have always been able to discriminate between pus and lymphy effusion. Sometimes the vein becomes obliterated by the thickening of its coats, either with or without adhesions, which form in the canal itself by means of coagulated blood, which becomes organized, or of lymph, which is thrown out, or, as some allege, of pus, which concretes. When the principal trunk of a limb becomes impervious, infiltration into the cellular membrane takes place, producing a great enlargement of the extremity; and Dr D. D. Davis, Professor of Midwifery in the London University, has the great merit of being the first who discovered this to be the cause of the disease denominated *phlegmasia dolens;* a discovery which has not only thrown light upon the disease in question, but also upon surgical pathology.

Inflammation of veins sometimes, though rarely, terminates in ulceration and gangrene, involving the surrounding soft parts. Ossification of veins is rarely observed; I have seen only one instance of it, and that was in the crural vein. The arterial system was very much disorganized from the same cause. The preparation is in my Museum.

Treatment.—General bleeding is sometimes necessary in this

disease, but in general the application of leeches, and incisions with the knife, are more frequently demanded, to diminish tension. Fomentations and poultices are required to the part, and the exhibition of calomel and opium seems indispensible. This disease, being generally considered "surgical," is not fully treated of here; but I cannot lose this opportunity of referring the reader to an excellent practical paper on Inflammation of Veins, by Dr Dumbreck, Fellow of the Royal College of Surgeons of Edinburgh, published in his inaugural dissertation when he graduated in the year 1822.

PHLEGMASIA DOLENS.

Symptoms.—Some time after delivery, (within the fourth or fifth week,) pain, or some degree of uneasiness, is complained of in the hypogastric, lumbar, or inguinal region, with slight fulness at the upper part of the thigh, which soon increases, and extends downwards, affecting the labium on the same side. The progress of the tumefaction varies in different cases. In some, the enlargement takes place rapidly; thus, I have seen the limb attain nearly twice the size of the other in the course of thirty hours from the time the person first began to complain. Generally, however, the disease is more slow in its march, the swelling increasing to its greatest size in the space of from forty-eight to seventy hours. On examining the limb, it will be found to be tense, somewhat elastic, white, shining and hot, extremely painful, particularly upon pressure or motion. The patient is unable to move it herself, and experiences a sensation as if it were considerably larger than it actually is. Most frequently the disease is confined to one side,—both limbs are rarely affected at once; but it sometimes happens, that as it declines in one leg it attacks the other.

Occasionally the pain is first felt in the calf of the leg, or the inner condyle of the knee, darting upwards and downwards; but in either case, the tumefaction goes on rapidly. The pulse is frequent; the skin hot; and the thirst urgent, with great restlessness. The lochial discharge cannot be

taken into account, as the disease seldom comes on till it has disappeared.

The phenomena above described are frequently preceded by decided marks of uterine irritation, and often by rigors; indeed, the worst form of this complaint is that which succeeds to peritonitis, and to symptoms indicating considerable irritation or inflammation of the membranes of the brain; and I have seen three instances in which women were attacked with phlegmasia dolens succeeding to affections of the brain, which had been preceded by severe peritonitis.

The peculiarities of this disease are, that the limb is hot, white, and although swollen, the parts preserve nearly their relative proportions: in anasarca, the limb is generally cold; the swelling is greatest at the most depending part; and it pits on pressure, which does not happen in the first stages at least of phlegmasia dolens.

The duration of this curious affection is very various, depending much upon the constitution of the patient, the severity of the attack, and the mode of treatment in the early stage. In bad cases, which have been allowed to go on too long without applying the proper means, it is tedious and intractable, occupying weeks, and even months, leaving the patient, even then, feeble, and in a dangerous situation. Under such circumstances, the limb will rarely recover its former small size, and will be for a long period stiff and powerless.

It will be found that Mr White's description of the symptoms varies from that of Mr Brandon Trye, and both, somewhat, from that of Dr Hull; and Dr Dickson states, that the march of the disease in the same woman varied in different attacks, which is exactly what I have myself noticed. In the 2d vol. of the "London Medico-Chirurgical Journal," it will be found that Dr Belcombe mentions the case of a lady, the mother of four children, who experienced three violent attacks of this disease, after giving birth to the first, third, and fourth child,—her labours having always been easy and natural, and her general health good, except a decided tendency to constipation. The first attack commenced with pain in the right groin; the second commenced with pain in the calf of the left leg; the third was the most severe of all,

and commenced about four days after delivery, again with pain in the right groin, and after violently affecting that limb, attacked with equal, if not greater severity, the left; no lameness or enlargement followed, but there was a tendency to swell in the evening, and a feeling of stiffness upon the least exertion.

Phlegmasia dolens occurs also during pregnancy. In the same volume of the work above quoted, Dr Dickson mentions having seen one case during pregnancy, and relates another, which occurred to Mr Henderson, a surgeon in Bristol. He further states, that he is indebted to the same gentleman for an interesting example of this affection in the unmarried and unimpregnated female. Puzos relates three cases which occurred during pregnancy. In Thomas's "Practice of Physic," mention is made of an instance of this affection happening in an aged woman. I have myself seen it under all these circumstances; and it now appears, as I shall subsequently shew, that it is not confined to the female sex.

Pathological Observations.—Some obscure hints are to be found in the works of Hippocrates, which would lead us to suppose that he had seen the disease. Rodericus a Castro, a Spanish author, makes some pointed remarks in the third book of his work,* respecting swellings of the legs after parturition. The celebrated Wiseman notices a case, in the fifth chapter of the first book of his surgical works. Mauriceau, however, is the first author, as far as I know, who has given a tolerable account of its symptoms. The twentieth chapter of the first part of his works, is entitled, "Of the swelling of the limbs and thighs of women recently delivered." Puzos and Leveret also mention it, and suppose it to be produced by a translation of milk, which they imagine to be infiltrated into the limb. Mr White of Manchester was of opinion, that the disease is owing to the bursting of the lymphatics, from the pressure of the child's head, and the retention of the lymph, in the lymphatic vessels and glands of the limb. Mr Brandon Tryc supposed the disease to be seated in the lymphatic glands themselves, which are obstructed by the pressure of

* "De Universa Muliebrium Morborum."

the uterus and its contents. Dr Hull, who wrote a very learned treatise upon this disease, conceives that it "consists in an inflammatory affection, producing suddenly a considerable effusion of serum and coagulating lymph from the exhalants into the cellular membrane of the limb," (p. 204.) He considers that the pyrexia proves beyond all doubt the existence of a general inflammatory diathesis; the excruciating pain, tenderness, heat, and swelling of the leg, equally evince the presence of topical inflammation; the seat of the disease he believes to be in the muscles, cellular membrane, and inferior surface of the cutis; and in some cases, perhaps, the inflammation may be communicated from these parts to the large blood-vessels, nerves, lymphatics, and glands. An attempt has been made to identify this disease with diffuse inflammation of the cellular membrane; but in the disease I am now describing, there are no marks of inflammation of the cellular substance, whether subcutaneous or intermuscular, or of the muscular fibre itself, and the external aspect of the affected part is very different. Dr D. D. Davis, Professor of Midwifery in the London University, to whose ingenuity operative midwifery stands so much indebted, being dissatisfied with all the pathological opinions that had been laid before the profession, set about the investigation with a mind unfettered by any particular doctrine; and so determined was he to be guided by the appearances displayed on dissection, that he resolved to employ a distinguished anatomist, who was to draw up his own report. The first fatal case which occurred in Dr Davis's practice, was that of a poor woman in St Giles's, in the year 1819, and Mr Laurence was requested to conduct the dissection. No distended lymphatics were observed, nor diseased lymphatic glands, but the crural vein was found diseased and thickened in its coats, and its cavity obliterated by an organized coagulum, and a matter which appeared like pus. Dr Davis made public the result of this dissection in his class-room, and it became the subject of discussion at the Medical Society of St Bartholomew's Hospital; and perhaps it is fortunate for Dr Davis's fame that that discussion took place, as very daring attempts have been made to deprive him of the merit which is so justly due to

him. Subsequently to this period, Dr Davis and others have had several opportunities of examining fatal cases, and in every instance, as far as I am aware, either the crural or the iliac veins were found affected in a similar manner.* After lecturing upon this subject in December 1824, the late Dr Dease, Surgeon to the Forces, who did me the honour of attending my class, told me that he had produced such a disease in the person of a serjeant of an Irish militia regiment, by tying the saphena vein to cure a varix. All the phenomena of *phlegmasia dolens* took place; the inflammation of the vein seemed to extend into the abdomen. The disease was subdued by copious depletion, but the man had a narrow escape. It would appear that the same circumstance has happened in the hands of Sir Astley Cooper, by tying the same vein. A case occurred, in the lower extremity, after amputation, in a male patient operated on in the Westminster Hospital; *phlegmasia dolens* took place in the other limb, and after death the disease was traced from the vein of the stump, which became inflamed soon after the operation. The disease ascended along the vessels, so as to affect the iliac portion of it; after reaching the bifurcation of the *vena cava*, the inflammation extended down the iliac vein on the opposite side, which was found thickened, and contained the same kind of plug observed in Dr Davis's cases.†

In the present state of our knowledge, I am far from alleging that inflammation of the veins is the only cause of this affection; but I conceive that no reasonable mind can reject Dr Davis's pathology.

Treatment.—It would appear that Puzos was among the first who recommended blood-letting in this disease, and Leveret followed his footsteps; but topical bleeding was not used until recommended by Mr Trye. If the pulse be strong, and the patient robust, it may be found adviseable to take blood from the arm in considerable quantity; but should

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* Vide Vol. xii. part 2. Med. Chir. Trans. of London.

† The reader is referred to the dissection recorded at pp. 58, 59, of this volume. The appearance of the veins is described in a young woman, who survived an attack of the disease for some years.

phlegmasia dolens succeed any other acute disorder, which has left the patient much weakened, either by diseased action, or the remedies employed to reduce it, the lancet is inadmissible. We must then rely upon topical bleeding by leeches, purging, fomentations, and blisters; in all cases, large doses of calomel and opium are necessary. As soon as fulness, with pain increased on pressure, is observed in the inguinal region, we shall have reason to dread an attack of this disease, and therefore must be on our guard; and should there be the least appearance of its becoming worse or extending, ten, twenty, or thirty leeches should be applied over the part affected, and repeated in increased numbers, again and again, if necessary. The great point to be attended to, is to arrest the disease before the swelling takes place in the extremity. In this way, I think I have been able, during the last ten years, to check it several times in its first stage. If not called till the whole limb has become swollen, we must have recourse to leeches in such numbers as the strength of the patient will admit. Antimony is to be used as a contra-stimulant: in all cases it is a powerful means of enabling us to save blood. I cannot agree with Dr Davis, respecting the administration of digitalis, when we have a more powerful and certain remedy in antimony. In the latter stages of the disease, blisters are to be applied, so as to occupy the lower part of the belly, as well as the upper part of the thigh, of the patient. I have seen good effects, in one case, from the application of ice to the limb in the early stage of the disease, but it might prove a dangerous remedy after the swelling has taken place. During recovery, frictions and bandages will be found very beneficial.

With respect to the general treatment of inflammation of veins, it may be shortly stated, that it must be conducted upon the same principles as recommended in other severe inflammatory complaints. But I would strongly urge the free and early administration of calomel and opium, which is represented to have been so beneficial in inflammation of veins in the ordinary state of the system.

CHAP. VIII.

PLETHORA, AND EXSANGUINITY.

I WISH to restrict the term plethora to express an undue quantity of blood in the system. Although it can scarcely be ranked as a disease, yet it deserves to be treated of in a course of the Principles and Practice of Physic, as being a powerful predisposing cause of many serious affections.

Where there is such a redundancy of blood in the system as to threaten mischief, some of the following symptoms will be observed :—an overpowering sense of heat and fulness ; flushed face ; oppression in the chest, and more or less difficulty in breathing ; weight at the præcordia ; a sense of uneasiness or fulness in the head ; a full, strong pulse ; occasional vertigo ; a difficulty in keeping awake, particularly after a hearty meal ; disturbed nights, from heat of surface and disagreeable dreams ; an appearance of debility, which is not real, but which induces many people to take more food and more wine, even when the pulse is full and bounding. The bowels will be found to be out of order, and the tongue, in general, loaded. To a person so affected, the least accident, as a fright, or exposure to cold, or drinking a cold fluid, or eating any thing indigestible, deranges the balance of the circulation, and simple apoplexy may be produced, or accumulation of blood in some other internal organ, terminating in inflammation ; or the combinations of symptoms denominated fever, may take place.

Causes.—In youth, generally speaking, the constitution is plethoric, the demand for blood being great to meet the wants of the system, to supply the means of growth, and the development of the various organs and functions of the body. At the age of puberty the system is very active; and it is sometimes matter of wonder, how quickly the various parts of the body take on the appearance of manhood. The age of puberty, therefore, is well known, even to the vulgar, as being a critical period of life.

The plethora necessary to affect all these changes, subsequently becomes less and less requisite, and its continuance is the cause of many serious maladies, which are known to take place at this age, in the shape of fever, inflammation, and consumption. Indolence, and sedentary habits, are also causes of plethora.

Some people make blood quickly; feed them on the lowest diet, but give them liquids, and they will still be plethoric: but there are others, who daily feast upon the richest articles of food, and yet can never be said to be in that state.

Treatment.—It is fortunate for mankind that diarrhœa so frequently takes place, and assists the constitution when struggling for her very existence; that profuse perspirations are so easily excited; and that the kidneys act occasionally so as to produce an increased flow of urine,—all of which circumstances tend in a remarkable manner to deplete the system. It will be observed, that eruptions of various kinds appear on the face, back, breast, and shoulders, at the age of puberty, acting the part of good contra-irritants, to the relief of internal organs; these eruptions, which are generally of the slow suppurating kind, produce considerable local irritation. Sometimes I have seen urticaria appear very generally over the surface of the body, when the system was to all appearance in great jeopardy. Epistaxis, or bleeding from the nose, is known to take place frequently in plethoric subjects, and is often productive of the greatest benefit.

The buoyancy of spirits, so peculiar to young men, urges them to athletic and manly exercises, and does good, not only by strengthening the frame, but also by preventing plethora.

In females, the menstrual discharge appears to operate in preventing a redundancy of blood.

The consideration of these circumstances leads us at once to the proper plan of treatment, not only for the purpose of preventing plethora, but of reducing it when it does exist, and threatens danger. Blood-letting occasionally saves life; but it is very far from being necessary in the majority of cases, unless some important organ is threatened with inflammation. At first, the bowels should be very freely acted upon, and subsequently kept regular, so that the patient shall have one or two free evacuations daily. Regular exercise; early rising; moderate indulgence at table, avoiding slops; and sleeping in a well-aired room, are all points of the greatest consequence.

EXSANGUINITY.

This disease is characterized by a deadly paleness over the surface of the body, particularly of the face and lips. The pulse is quick and feeble, easily excited, and there are frequently palpitations; the appetite is impaired and fastidious; the bowels are disordered; there is languor, general debility, and emaciation.

There is considerable approach to this affection in chlorosis; and it is sometimes produced by the actual loss of blood. This is an affection which has been noticed by the older writers, but we are not yet acquainted with the pathological condition of the body on which this bloodless state depends, when it is not occasioned by hemorrhage. I have seen the affection occur at all ages, and in individuals of apparently very different habits and occupations. The most unsophisticated example of exsanguinity on record, with which I am acquainted, is that related by Dr Combe of Leith, in the 1st vol. of the "Med. Chir. Trans. of Edinburgh."

This disease affected a considerable number of workmen, who were employed in a coal mine at the village of Anzin, in the immediate vicinity of Valenciennes, in which neighbourhood I resided for upwards of two years, and had frequent opportunities of satisfying myself of the correctness of the statements given in the 9th vol. of the "Journal de Medicine,"

by Professor Halle of Paris. Although the disease attacked the men severely, who were employed in a particular mine, yet I observed that a considerable number of others were pale and emaciated, and very few of the colliers looked strong and ruddy. The pit in which the disease occurred, was one hundred and twenty fathoms below ground, excavated in the same manner as the others, only, from being longer, it admitted fresh air less readily; its temperature was 64°, and it exhaled an odour of sulphuretted hydrogen gas, and respiration in it is described to have been difficult. The workmen affirmed, that the water which filters across the mine, on touching their hands, or the naked parts of their bodies, produced blisters and boils. Nevertheless, they had the imprudence to use it occasionally for the purpose of allaying thirst. A description of the symptoms was sent to the School of Medicine in Paris, by which it appears, that the disease commenced with violent colics, pains in the intestines and stomach, dyspnœa, palpitations, diminution of strength, distention of the abdomen, and stools of a black and green colour. The patients continued in this state for ten or twelve days, or more, when the abdominal pains ceased, but the pulse remained feeble and contracted; the skin lost its colour, and became of a yellow tinge; locomotion was performed with difficulty, and accompanied by great fatigue; frequent palpitations caused an extremely painful state of anxiety; the face became swollen, and copious perspiration took place. This state is represented to have continued even for more than a year, attended by wasting and emaciation. At length, the original symptoms recurred with violent headaches; frequent attacks of syncope; intolerance of light and sound; tympanitic distention, pain in the belly, and purulent stools; and death soon closed the scene.

When these details were transmitted to the Society of the School of Medicine in Paris, out of fifty attacked with it, three died, and none were perfectly cured. Upon an earnest request on the part of the Society, four pitmen were sent to Paris, on purpose that the phenomena of the disease might be more carefully watched,—the treatment more efficiently directed,—and in case any of the patients died, that the appearances on dissection might be minutely recorded. Two of

these men recovered perfectly, one imperfectly, and one died. The following appearances were found on dissection. "The abdomen contained no serous exudation. The intestines, and especially the colon, were very much distended; and the fat, both sub-cutaneous, and in the omentum and mesentery, was very yellow. The liver was small, and did not project beyond the ribs; it was soft and pliable in every part; it was of a pale yellow colour, both externally, and in its substance, which was soft and unctuous to the touch. The gall bladder was half full of bile, of a colour like the yoke of an egg; and when analysed, was found to contain much coagulable albumen. The spleen was small, and softer than ordinary; and the liquid which flowed from it, as it generally is, was red, like the dregs of red wine.

The stomach, when opened, was found half full of a liquid, coloured like the dregs of wine. The duodenum, and the jejunum, were lined with a mucus of a similar colour; and when that mucus was removed, the membrane, both in the stomach and intestines, in all their extent, appeared white and sound. The matter contained in the rectum was thick and figured, and of a greenish brown colour. All the other abdominal viscera were sound.

In the cavity of the thorax, the right lung adhered almost every where to the pleura, and especially on its anterior part, but the left lung was almost entirely free. In neither was there any remarkable quantity of serosity; both were light, crepitated under the fingers, and there was no congestion. They were externally white, and mottled with dark blue spots; and on incision, a frothy yellowish serosity issued from all points of these substances, but not from any preternatural collection. The heart was of an ordinary size, and its flesh as pale as that of muscles which have been washed and macerated. Its parietes were soft, and the columnæ carneæ small. Its structure was not at all affected. Not a drop of red blood escaped from any of its cavities; but in the left ventricle, a coagulum as pale as the flesh of the heart itself, was observed, which contained no perceptible portion of colouring matter; the pericardium contained no serosity.

The brain was white, the cineritious substance pale, and

little distinguished from the medullary substance. Two or three scruples of serosity only were found in the posterior part of the left ventricle, and the choroid plexus was very pale.

In the three cavities, all the vessels, both arteries and veins, were destitute of coloured blood, and contained only a small quantity of a serous liquid. No blood was found in the aorta, as far as its crural subdivisions, nor in the axillaries, as far as the brachial subdivision, nor in the accompanying veins, nor in the system of the hepatic vessels, nor in any of the sinuses of the brain. Upon making a deep incision into the flesh of the thighs, there flowed out a small quantity of liquid and black blood, but from no other part did any flow. The flesh of the muscles which cover the thorax, was exceedingly red; but that of the extremities not much so.

With respect to the appearances observed in Dr Combe's patient, it may be briefly stated, that they were similar.

Treatment.—Mercury has been tried, but the result does not afford much hope of its being pre-eminently useful; and, in some cases, it was decidedly injurious, by producing febrile excitement. The most favourite remedies are stimulant and tonic medicines, with occasional opiates, when required to relieve the griping pains in the bowels, together with the employment of gentle laxatives. Professor Halle speaks highly of chalybeates. I have seen several children, who suffered much from the draining of blood after being leeched; but all of them recovered under light nourishing food, ass' milk, and a small quantity of brandy three or four times a-day, together with warm clothing; the patients being kept as much as possible in the open air. I am induced to believe, from reflecting on many circumstances connected with cases that fell under my notice in the West Indies many years ago, which were forcibly brought to my recollection when perusing Mr Twining's valuable observations on diseases of the spleen, in his work already quoted, that disorders of the spleen may be found to produce all the appearances of exsanguinity. I cannot speak with much confidence on the subject, but I have found much benefit from the use of Mr Twining's spleen mixture in several cases.

CHAP. IX.

CYANOSIS OR BLUE SKIN.

This affection is also known by the term "*Morbus Cæruleus.*"

Symptoms.—Discolouration of the skin, which is sometimes blue; at others, livid or violet; the whole surface is in this state, even the mucous membrane lining the mouth. There is cough, palpitation, sometimes syncope. In some cases dyspnœa is a constant attendant, which is increased by exercise, a loaded stomach, constipation and mental emotions, together with the application of cold and damp.

Pathological Opinions.—This disease is usually attributed to a communication between the right and left sides of the heart, or to some other malformation of that organ, by which means a considerable portion of venous blood is circulated in the arteries, without having previously passed through the lungs. The passage of blood from the right side of the heart to the left, may take place in consequence of the *foramen ovale*, or *ductus arteriosus*, continuing pervious after birth, or by a communication between the right and left ventricle.

Dr Gintrac, Professor of Anatomy and Physiology in the School of Medicine at Bordeaux, published a work on this subject in 1824,* and he has collected the results of fifty-three dissections, of which the following is an abstract.

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* Observations et Recherches sur la Cyanose, ou Maladie Bleue.

In 22 cases the aorta was found to arise from both ventricles.
— 33 — the *foramen ovale* was open.
— 14 — the *ductus arteriosus* was open.
— 4 — a single heart, of one auricle and ventricle.
— 5 — the ventricular septum was imperfect.
— 22 — the pulmonary artery was contracted.
— 5 — the pulmonary artery was obliterated.
— 1 — the aorta was obliterated.
— 4 — the aorta was seen arising from the right ventricle, the pulmonary artery from the left.

The above table is very interesting in many respects: it proves that the disease upon which the colour of the skin depends, is generally congenital, when it either very soon proves fatal, or perhaps not till the child suffers from teething, or begins to walk alone. But, as Bertin remarks, many of these lesions have existed without the appearance of this affection of the skin. It is well known that a disease presenting similar external characters has been produced by the action of the nitrate of silver. I have seen two cases in which the disease followed the exhibition of this remedy; in both it was prescribed by the late Dr Baillie for the cure of epilepsy, and in neither of the subjects were there any symptoms of an organic affection of the heart. It is probable that in such cases the nitrate of silver produces a change either in the condition of the blood, or in that tissue which gives the colour to the surface of the negro. Bertin supposes that the disease depends upon a retardation of the blood in the whole venous system, and not upon the admixture of black and red blood, as has been alleged by others.

Treatment.—Should the disease depend upon any of the malformations of the heart, already noticed, a cure cannot be expected; but something may be done to mitigate violent symptoms, and prolong life, by avoiding exercise, as well as every other circumstance which can tend to hurry the circulation, and quicken respiration. In the two cases already quoted, in which the discolouration of the skin was produced by the action of the nitrate of silver, every possible remedy was had recourse to, first by Dr Baillie, and afterwards by myself, without success.

PART V.

DISEASES OF THE NERVOUS SYSTEM.

CHAP. I.

GENERAL REMARKS ON THE DISEASES OF THE BRAIN, &c.

HITHERTO a description of the disorganizing effects of diseased action on the matter of which the body is composed, has more particularly occupied our attention; now, however, a more difficult task has to be attempted, as the inquiries now commenced involve the consideration of the functions of the brain, including the investigation of that class of affections commonly, but perhaps erroneously, termed the "*diseases of the mind.*" There are great difficulties to be encountered at every step; one of these relates to the nature of that which is called "*nervous energy,*" and the manner in which it is propagated and conveyed to the different parts and organs of the body. Many important discoveries must be made by anatomists and physiologists, before pathologists can be expected to explain fully and satisfactorily the true nature and seat of the numerous and complicated diseases of the brain and nervous system. Another obstacle, which too often thwarts us in our investigations, proceeds from the speedy manner in which the functions of the brain become so much affected, as to render the sick unable to give a correct account of their feelings and symptoms. The first step to improvement is to acknowledge our ignorance; but in doing so, it must not be supposed that these branches of medical science have been allowed to stand neglected. On the contrary, there are

many able and industrious cultivators in the field, both at home and abroad, and much substantial advancement has been already effected by their investigations.

'*Universa Arabum scholæ mansiones multas, in cerebro statuit et singulis facultatibus singulas sedes assignat.*' So says Laurentius, and from the experiments of Rolando, Flourens, Serres, Magendie, Sir Charles Bell, and others, it would appear to be incontestible, that different parts of the brain and spinal marrow perform essentially different functions. It is indeed true, that there is a want of complete agreement in the results of the experiments of some of these distinguished physiologists, and that these discrepancies must be decided by subsequent experiment, before the precise value of the statements already laid before the public can be accurately determined. In the mean time, however, it must be held that the grand and leading fact is already proved, that the brain performs some actions essentially different from those emanating from the cerebellum; and both of these parts from the medulla oblongata, and spinal marrow; and that the ganglionic system is in some measure independent of the brain, and is engaged in performing peculiar functions.

The brain has been divided by those distinguished anatomists and physiologists, Gall and Spurzheim, into a number of organs, which they conceive to be separate ganglions; and although I must confess that I have had neither time nor opportunity to examine their system with that care and attention which the importance of the subject demands, and which might enable me to give a decided opinion respecting the truth of all its parts, yet experience and observation oblige me to state, that much of their doctrines appears to be true, and that science owes a great deal to the labours of the gentlemen who have been engaged in phrenological inquiry.

It would seem that the superiority of man to animals, and of one man to another, does not depend on the absolute size of the head, or even on the relative size of the brain; for it has been proved, that the brain of a sparrow bears as large a proportion to its body as that of a man, and that of the canary-bird a still larger proportion. Man owes his superiority over the rest of the animal creation to a larger develop-

ment of the anterior lobes and hemispheres of the brain, and to the number and depth of the convolutions.* One man would seem to excel another in intellectual and moral worth, not from the absolute size of the head, but from a difference in the proportion of certain parts of the cerebral mass. Upon the repeated observation of these facts the phrenological doctrines have been founded.

It appears to be established by experiment, that there are nerves devoted solely to sensation, and others to muscular motion, while there are nerves combining both these properties.

In a work published by Flourens in the year 1824,† the results are given of a great many experiments performed on the lower animals, which prove that different parts of the nervous system perform different functions. When the two lobes of the cerebrum were simultaneously removed from fowls, deafness and blindness were produced; the animals fell into profound torpor; they appeared to have lost all sensation; could neither eat nor drink, except when food was put into the throat; but when irritated and roused, they could walk, jump, or fly. When the experimenter removed one lobe of the cerebrum only, the animals became deaf and blind on the opposite side of the body; the sensibility was only partially destroyed, and the lethargy was not so profound.

When he removed the cerebellum from a number of animals, they did not lose their sensibility, neither did they become deaf, blind, nor comatose. The animals still possessed the power of muscular motion, but they were unable to controul it. They could not balance their bodies; their movements were tottering, like those of a person in a state of inebriation.

In a third set of experiments, he removed the *corpora quadrigemina* in some of the animals, and total blindness of both eyes, with immobility of the iris, were the consequence. When the right was removed, blindness of the left eye took place. When the left was removed, blindness of the right eye was

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* Magendie first observed a connection between the number and size of the convolutions, and the vigour of the intellectual faculties.

† Recherches Experimentales sur les Propriétés et les Fonctions du Système Nerveux, dans les Animaux Vertébrés.

produced. When the *corpora quadrigemina* were wounded, contraction of the iris and weakness of vision occurred on the opposite side. Partial removal weakened the action of the iris, and produced partial blindness on the opposite side. Deep wounds of the *corpora quadrigemina* produced partial blindness; but as the parts healed, vision was restored. The organ of vision seems to be the only part affected by injury or removal of the *corpora quadrigemina* in the lower animals.

Flourens next performed a series of experiments to ascertain the functions of the medulla oblongata. He found that injuries and wounds of this organ produced convulsive movements in the parts supplied by nerves issuing from it: and he draws the following conclusions.—1*st*, That the lobes of the brain, which neither regulate nor excite voluntary motion, are the seat of intellect, volition, and sensation. 2*d*, That if the lobes of the brain or cerebellum are irritated or wounded, contractions of the muscles never follow; but he has proved by experiment, that the spinal marrow is the immediate agent of all the muscular movements and contractions; but it is not the seat of volition, nor does it possess the power of regulating the muscular action. 3*d*, That the cerebellum possesses the power of regulating the muscular action. 4*th*, That in the lower animals the power of vision depends upon the *corpora quadrigemina*. 5*th*, That the medulla oblongata is the centre of the involuntary movements. 6*th*, Another important result is ascertained, that deep wounds may be made into the substance of different organs of the brain, and considerable portions removed, without destroying the functions of the parts. And further, that complete recovery of their functions may take place as the brain heals, after they have been for a time partially or totally lost.

From these and other statements in his work, it will be observed, that Flourens believes there are three distinct phenomena in every voluntary motion: first, volition, which depends on the hemispheres; secondly, co-ordination, or regulation of movement, which depends on the *cerebellum;* and thirdly, irritation, or that power which excites muscular contraction, which depends on the *medulla oblongata*, the *medulla spinalis*, and nerves. He has been led to believe that volition, sensa-

tion, and perception, constitute but one faculty, which is a function of the hemispheres of the brain. It may be briefly mentioned, that Rolando, from experiments performed previously to those of Flourens, came to similar conclusions, but with this exception, that while the latter makes the cerebellum the regulator of voluntary movement, the former considers it the source whence the motion proceeds.

Flourens next performed experiments on many animals, to ascertain the precise effects of opium, belladonna, and alcohol. He concludes that opium acts more particularly upon the functions performed by the lobes of the cerebrum; belladonna on those performed by the *corpora quadrigemina;* and alcohol on the cerebellum. It must be confessed, however, that these experiments are not worthy of so much attention as the former.

It would appear by a report made to the Academy of Sciences, upon the memoir of Flourens, by Portal, Count Berthollet, Pinel, Dumeril, and Baron Cuvier,—that these experiments were performed with the greatest care and circumspection; that Flourens repeated the principal ones before these philosophers; and that they appeared correct. It would be difficult to find five men better qualified to decide upon a scientific subject.

In the work published by Professor Serres * in 1826, it is asserted, at page 662. of Vol. II. that when an instrument is plunged into the lobes of the brain, or into the cerebrum, to a certain depth, severe pain and great sensibility are manifested; although he alleges, that the *medulla oblongata* is the principal seat of sensibility. At page 664, this author assures us, that disease of the *tuber annulare* and *medulla oblongata* produces paralysis, equally in the superior as in the inferior extremities; whereas disease of the lobes of the cerebellum affects principally the sacral extremities; and disease of the lobes of the cerebrum, the superior. He thinks that disease of the *corpora striata* is shewn, by effects being produced on the inferior extremities; that of the *thalami nervorum opticorum* on the superior. He also alleges, at page 687, that disease affecting

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* Anatomie Comparée du Cerveau, dans les Quatre Classes des Animaux Vértebrés, appliquée a la Physiologie et a la Pathologie du Système Nerveux.

the radiations of the *thalami nervorum opticorum* impedes respiration more than that of the radiations of the *corpora striata;* and that disease of both affects the voice, speech, and pronunciation. The same author also asserts, at page 689, that the lobes of the brain exercise a very powerful influence over the voluntary muscles; and that injuries of these lobes are followed by paralysis on opposite sides of the body.

Flourens contends, that when the medulla oblongata is injured, convulsions are produced on the same side of the body, which Serres thinks deceptive, (page 641,) and asserts, that the same law holds good with respect to the medulla oblongata, as with other parts of the brain, viz. That injuries on one side produce paralysis on the opposite side of the body.

Serres believes, that the cerebellum is the seat of sexual desire; and has brought forward facts which appear to shew a remarkable coincidence between great and long continued excitement of the sexual organs in both sexes, and marks of irritation and disease in the lobes of the cerebellum.

The experiments of Magendie appear in some respects to confirm, but in the majority of points to refute, those of the individuals already mentioned. He states, that it is not in the brain proper, nor in the cerebellum, that the principal seat of sensibility or of the *special senses* is placed. The hemispheres of the brain and cerebellum may be removed in a mammiferous animal, and it will continue to experience sensations, odours, sounds, and sapid impressions. Vision, however, is abolished. Injury of the *thalamus opticus* is also followed by loss of vision in the opposite eye: For the exercise of sight, "the integrity of the hemispheres, of the *thalami*, and perhaps of the *anterior corpora quadrigemina*, and finally of the fifth pair, is necessary." * The parts of the nervous system, he continues, which appear to be more particularly destined to motion, are "the *corpora striata;* the *optic thalami* in their inferior parts; the *crura cerebri;* the *pons varolii;* the *peduncles of the cerebellum;* the lateral parts of the *medulla oblongata*, and the anterior fasciculi of the *medulla spinalis*." †

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* Magendie's Physiology, by E. Milligan, M. D. p. 112.

† Ibid. p. 120.

Magendie's experiments on the cerebellum and its appendages have been followed by results of the most interesting nature, more particularly as to the agitated and prominent appearance of the eye-balls, and the movements of the animals; but I must refer my readers, for further information, to Dr Milligan's excellent and condensed translation of the work.

It appears from the investigations and experiments of Sir Charles Bell and Magendie, that the old notion respecting the existence of two distinct powers possessed by the nerves, is correct: but the former gentleman goes still farther. According to him, each side, or half, of the spinal marrow consists of three columns, each column performing peculiar functions. All the nerves which arise from its posterior column, are devoted to sensation; those which arise from its anterior column, to muscular contraction; while the middle column gives origin to the respiratory nerves.

The only part of the nervous system which it remains for me to notice, is that of the nerve called the great sympathetic, which, together with its numerous ganglia, are in communication with the brain through the medium of the 5th and 6th pairs of nerves, and the spinal marrow through its whole course on each side of the spine. It is provided with numerous ganglia, which are for the most part deeply seated along the sides of the spine. The nerves of this system are smaller, with more of a reddish colour than the cerebro-spinal nerves, and are distributed in a peculiar manner, not only to organs not under the controul of the will, viz. lungs, heart, stomach, intestines, bladder, uterus, &c., but are also arranged in plexuses around the arteries and vena portæ. They would seem to possess no exquisite degree of sensibility; indeed, Magendie denies that they possess it in the least degree. There are different opinions respecting the structure and functions of this, as well as other parts of the nervous system, and the whole subject stands much in need of revision. It would be well for science if an association of physiologists were formed, for the purpose of repeating the experiments which have been already made upon this subject.* I hope there are few who will

* This statement was made in the First Edition, and I have lived to see such a plan carried into practice by the British Association. It is to be hoped, how-

agree to the singular assertion made by Dr George Gregory, at page 331. of his work on the Practice of Physic, where, alluding to these experiments, he states, "that no reasonable hope exists of deriving from them, even if considerably improved, any practical advantage."

For the purpose of preventing frequent repetition hereafter, it is essential to lay before the reader in this introductory chapter, a short sketch of the principal symptoms which are supposed to indicate disease of the brain. It is also desireable to notice in this place the nature and causes of those symptoms, which are usually ranked in other works as diseases,—viz. headache, vertigo, convulsions, rigidity of the extremities, coma, delirium, paralysis, &c.

1. *Headache.*—Exclusively considered, headache is perhaps less frequently a symptom of disease within the head, than of disordered action of the stomach and bowels. We sometimes meet with violent pains in the head in cases, the terminations of which shew that there has been no degree of inflammation going on; while, on the other hand, instances are not rare of great destruction of parts where headache has not been a prominent symptom. Headache may be produced by determination of blood to the head, and is occasionally very much complained of after excessive depletion; some individuals never partake of certain articles of food, without being severely afflicted; and with many, long fasting has also the same tendency. The common effects of intoxication, more particularly when produced by Champaigne, are too well known as a cause of headache, to require being here insisted on. There can be no doubt, that loss of balance between the arterial and venous systems in the head, produces this symptom. Persons who are frequently afflicted with headaches, when these are preceded by rigors, attended by giddiness and drowsiness, and especially when produced by every slight exertion, by exposure to cold during the course of ordinary oc-

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ever, that although nothing can be done in Edinburgh without a practical illustration of a system of jobbing, which has long been a disgrace to her Medical School, that the Association will not again be led into such gross errors as happened in 1834, in the appointment to committees, of men, whose names are not known out of the street in which they reside.

cupations, entering a heated apartment, or taking any stimulant, become objects of serious attention, and require medical treatment. The most efficacious plan is to enjoin rest and quietness, to open the bowels, apply cold to the head, and to bathe the feet in very warm water. Some cases will be relieved by a stimulant, a nourishing meal, or an opiate, while others will require general or local depletion.

2. *Vertigo.*—This is a more important symptom than the former, and is produced by various and opposite causes, viz. by determination of blood to the head, as in inflammation of the brain; by the want of a proper supply of blood in the head, as in hæmorrhage, or after considerable depletion; by loss of balance in the circulation between the arterial and venous systems; by extravasation within the skull; by ossifications of the arteries of the brain; or by the growth of tumours, and other disorganizations, which may occur either on the surface or within the substance of the brain itself. Vertigo is one of the well-known effects of drunkenness; it is also occasionally produced by indigestible substances in the stomach and bowels—by the motion of a ship, a carriage, or a swing—by looking over a precipice, or climbing a ladder—or by running round in a circle; and it is rather a curious fact, that vertigo shall take place upon rising out of the recumbent posture after confinement to bed only for a day or two. Vertigo is likewise produced by dilatation of the cavities of the heart, and disease of the valvular tissue.

3. *Convulsions.*—Convulsions sometimes indicate disease of the brain. They frequently attend inflammation, and there can be no doubt that they occasionally depend on organic lesions. It would appear that convulsions are occasionally produced by too much blood in the head, and there can be no doubt that they are frequently occasioned by too little blood, as after excessive depletion, particularly when the body is brought into the erect posture. They sometimes take place from the loss of balance in the cerebral circulation. Indigestible substances in the stomach and bowels, and worms, together with the excessive use of stimuli, opium, &c. are well-known causes of convulsions. But I shall speak more at length upon this symptom when treating of epilepsy.

4. *Rigidity of the Extremities.*—The occurrence of this symptom, combined with paralysis, according to some French authors, is never wanting in the state called *ramollissement* of the brain. My experience is in general confirmatory of their opinion, that it takes place in a great majority of such cases; but I shall speak more fully on this point when treating of ramollissement of the brain.

5. *Coma.*—Coma, or even a tendency to it, is a very alarming symptom, more so than any of those already mentioned. It may be produced by various and even opposite conditions of the brain; by inflammatory action, or the growth of tumours; but it is perhaps more frequently occasioned by the state which has been denominated venous congestion of the vessels of the brain, than by any other cause; in fact, this would appear to be the condition of the brain in simple apoplexy. An opinion too generally prevails, that coma always occurs in consequence of compression of the brain by effusion; but this is not the fact, as effusion, if it take place very slowly, may exist in great quantity without having such an effect. Coma is a frequent and a very alarming symptom in the fevers of this country, and it is difficult to discriminate the different states of the brain which give rise to this evidence of disease. He who shall be able to point out a sure method of discriminating between the coma produced by the advancement of diseased action, which will terminate, if not subdued, in disorganizations of the brain, and that occasioned by lost balance of the circulation, or by other causes capable of being removed, will confer a lasting boon upon society, and hand down his own name to posterity. One class of cases requires depletion, the antiphlogistic regimen, and the application of cold to the head; while another sometimes requires the most potent stimulants, and will be injured rather than benefited by the application of cold.

6. *Fever.*—Febrile symptoms are produced by inflammation of any organ or tissue of the body, including, of course, the brain and its membranes. Yet it must be stated, that inflammation may exist in the brain, producing the most extensive disorganizations, without causing those symptoms which, when combined, are termed fever. For example, the pulse, instead

of being frequent, may be reduced in point of number and strength much below the natural standard—to sixty, fifty, or even forty pulsations in the minute. It may be slow at the first onset of the disease, become quick, and continue so for a day or two, then sink below the natural standard, and rise again to one hundred and forty, or even higher, during a subsequent period of the disease. During the course of one hour, great variations of the pulse may be discovered in affections of the brain ; sometimes it is very rapid and intermitting, then slow and irregular ; oftentimes becoming so weak as scarcely to be felt, and soon again recovering its strength. The character of the pulse must depend upon the constitution of the patient, as well as upon the treatment pursued ; and I am acquainted with no disease in which the pulse becomes so quick after considerable depletion.

A hot skin does not always accompany inflammatory action. There can be no doubt, that very generally it does, but experience proves that the exceptions are numerous. The effects of extensive inflammatory action have been frequently discovered in the brain after death, in cases where the heat of skin during life had been below the natural standard, and where the face was deadly pale rather than flushed.

Restlessness and thirst generally attend inflammatory action, sometimes they occur in inflammation of the brain ; but a tendency to lethargy, and even to coma, is perhaps more common than restlessness.

7. *Delirium* is no doubt a very general consequence of inflammation of the brain. But the young practitioner should be aware that it does not occur in all cases, and that delirium may exist without any inflammatory action, nay, that delirium may take place from the want of sufficient circulation through the vessels of the head, particularly when there is a determination of blood to some other organ, as in inflammation of the liver, bowels, and even in small circumscribed inflammations of the skin and cellular tissue. A slight external irritation, such as that produced by a blister, will, in some constitutions, occasion temporary delirium. The French practitioners, who have devoted much attention to the subject of arachnitis, allege, that inflammation of the arachnoid, which covers the convex-

ity of the hemispheres of the brain, always produces delirium; but Lallemand, who is one of their best writers, states,* that he does not think that the arachnoid is the seat of delirium, but that inflammation of the arachnoid produces that symptom by affecting the *functions* of the brain, in the same manner as inflammation of the pleura will produce fnnctional derangement of the lungs, as evinced by the occurrence of cough and dyspnœa.

8. *Paralysis.*—This is a very frequent result of inflammatory diseases within the skull, and of tumours and apoplexy. In paralysis the muscular or motive powers of the part affected may be weakened, or entirely destroyed, while sensation may continue unimpaired, slightly diminished, or entirely destroyed. In some instances, sensation is partially or completely destroyed, while the motive powers continue nearly in the natural state. There is another condition which is worthy of notice,—a limb may preserve its powers of motion and sensation, but the person may have lost *controul* over muscular action; and I have seen instances of this condition in the upper as well as the lower extremities. I have observed it also very often in the hind legs of dogs affected with the disease called "the distemper." Paralysis has been very properly divided into three varieties; Hemiplegia, Paraplegia, and Palsy affecting a particular limb or part.

Hemiplegia sometimes follows an acute affection of the brain, and very frequently succeeds to an attack of apoplexy; it does occur, however, without being so preceded, when it is said by many to depend upon disease of the liver.

Paraplegia is very frequently produced by disease of the spinal marrow; but the best pathologists believe that it may sometimes be produced by disease of the brain. Paralysis of one limb may, I believe, be produced by disease of its own nerves; I have seen cases of paraplegia, and of great muscular debility of the lower extremities, occasioned by noxious sexual habits; and it is in these cases where local applications and nux vomica, or its active principle strychnia, appear to be of so much use. Two instances have fallen under my notice,

* In his Second Letter, p. 246.

of general debility of the whole of the voluntary muscles with paralysis of the superior extremities, which were attended by rigidity of the flexor muscles of the fingers, while the intellectual faculties remained entire. The disease in both instances was produced by the action of mercury. The individuals stood in the relation of uncle and nephew.

Paralysis is sometimes sudden in its attack; at other times it is slow and insidious. The recovery is sometimes complete; more frequently it is only partial, and occasionally the patient remains in the same state for life.

The short sketch now given of these leading symptoms, is intended to show how difficult it is to understand the diseases of the brain and nervous system; and it is to be hoped, will stimulate practitioners to be minute in the observation and comparison of phenomena, and unwearied in the prosecution of examinations after death. Notwithstanding all that has been so ably written on diseases of the brain, a great deal of error and ignorance yet prevail on the subject. This is not much to be wondered at, when we consider how slowly mankind throw off the effects of long-cherished opinions. Nevertheless is is surprising to meet with the most decided affections of the brain, which have been allowed to go on to a fatal termination unsuspected, because the symptoms did not tally, either in point of number or severity, with those laid down in Cullen's erroneous definitions.

It was a favourite speculation of the late Dr Monro, that the vessels of the brain cannot contain more blood at one time than another. Dr Abercrombie entertains the same opinion, and as he is the most recent writer on the pathology of the brain, and, moreover, as the point involves important practical results, I shall lay before my readers a short examination of his statements and reasoning. At page 315,* in the second edition, Dr Abercrombie thinks he may assume, "that in the ordinary state of the parts, no material change can take place in the absolute quantity of blood circulating in the vessels of the brain. But the blood circulating in these vessels must

* Pathological and Practical Researches on Diseases of the Brain and the Spinal Cord.

be divided in a certain ratio betwixt the arteries and veins of the brain; and it is probable that the healthy state of this organ will depend upon the nice adjustment of the circulation in these two systems." This gives, in my opinion, too arbitrary an influence to the circulation. It is the general belief, that all the organs of the body are liable to be affected in their functions, sometimes with, at others without any alteration in the circulation, and why should this be denied to the brain? Dr Abercrombie thinks that the brain is not compressible, "because, (says he,) we may safely assert, that it is not compressible by any such force as can be conveyed to it from the heart through the carotid and vertebral arteries," (p. 315.) This appears to be rather a hasty assertion; the state of the respiration must have a great influence, not only on the quality or condition of the blood, which I believe to be a source of many cerebral derangements, but on the quantity of blood in any given organ, and more particularly in the brain. In proof of the force with which the heart may act on the cerebral circulation, the following case may be mentioned. A young lady fell down suddenly, and died on the spot. On dissection, an aneurism about the size of a hazel-nut, situated at the origin of the sylvian artery, was found, which had been ruptured with such force as to break down the substance of the brain, so that a large quantity of blood found its way into the ventricles.

Dr Abercrombie endeavours to trace the various ways by which, in such an organ as the brain, derangements of the circulation may be supposed to take place. In a plethoric state of the body, he admits, (p. 315,) that "the arteries going to the head will partake of this general condition, and there will be an effort or impulse which tends to propel an undue quantity of blood into the arteries of the brain. Though no addition to the whole quantity of blood in the brain can actually take place, because the vessels of the brain are already full, the constant impulse will be such as tends to introduce an additional quantity, and, consequently, tends to derange the healthy relation betwixt the arterial and venous systems; for any increase of quantity in the one system, if such actually took place, would lead to a corresponding dimi-

nution of the quantity in the other. Let us say, for example, that the whole blood circulating in the brain is as ten, and that it is divided between the arteries and veins as five to five. In the loaded state of the system now referred to, we can suppose a case, in which, by some sudden impulse from the general circulation, the arteries of the brain are, at a particular moment, distended by a quantity as six. In any other part of the body this will be followed by a similar distension of the corresponding veins, and the healthy balance of the circulation would be speedily restored; but in the brain the very reverse would happen; for as the whole mass of blood must continue at ten, if the arteries were distended by a quantity as six, the quantity in the veins must be diminished to four; because the increased capacity in the one system of vessels can only be gained by a corresponding diminution of capacity in the other.

Dr Abercrombie here asserts, that the quantity of blood in the head can undergo no variation, it must be always the same; but he admits that a derangement may take place in its distribution between the arteries and veins; the former may sometimes contain too much, which necessarily leads to a diminution in the latter, and *vice versâ*. Let us follow out Dr Abercrombie's example, assuming the whole blood circulating in the brain to be as ten, and that it is divided between the two systems as five to five. Now, whether we begin by adding or by diminishing, it allows an addition or diminution to the whole quantity of blood in the head, which Dr Abercrombie believes cannot take place. An increase in the arterial system of the head cannot take place before a diminution occurs in the veins, nor in the veins before a diminution takes place in the arteries; so that if Dr Abercrombie's position were correct, no loss of balance could by any possibility occur in the vessels of the head.

In tracing the various ways by which derangements of circulation may be supposed to take place in the brain, and in following out the same line of argument, Dr Abercrombie states, (p. 319.) that "if a depression has been produced of a portion of bone, so as considerably to encroach upon the cavity of the cranium, or if a coagulum of blood has been deposited, so as to occupy a considerable space upon the surface of

the brain, the diminution of space thus produced would probably affect chiefly or entirely the venous system of the brain. It would not diminish the quantity of blood which tends to enter the arteries of the head; but it would diminish in proportion to its extent the capacity of the veins, and thus derange the relations betwixt the two systems of vessels, in a different manner from that which has been supposed under the former heads, but analogous in its effects upon the circulation in the brain."

We are entitled to ask, why the arteries should have such a remarkable exemption? Why should the veins be more affected by the pressure than the arteries, unless the depression or coagulum be in the course of the longitudinal or lateral sinuses? If the skull be completely filled during life, and if a piece of bone be depressed or a coagulum be deposited, every part of the brain, and all the vessels, arteries as well as veins, ought to feel it, and not one set of vessels alone.

From all the facts referred to by Dr Abercrombie in his work, he arrives at last at an important practical conclusion, that we cannot diminish by treatment the quantity of blood in the head; for, however guardedly Dr Abercrombie has surrounded himself by cautious expressions, and more particularly in the second than in the first edition, that seems to be his decided opinion. But he shall speak for himself: "Upon the grounds already referred to, there is reason to believe, that we cannot, by our evacuations, diminish in any material degree the quantity of blood in the head." But the effect of evacuations, he supposes, will be to take off the excessive impulse from the circulation.

The experiments of my lamented friend, the late Dr Kellie of Leith,* and the mechanism of the skull, shew, not as Dr Abercrombie supposes, that the quantity of blood in the vessels of the head cannot be diminished, but rather, how difficult it is to deplete the brain altogether, or so much as to render it cognizable to our senses on dissection, even in animals purpose-

* In Dr Kellie's death, the world has lost an accomplished physician; and I have to regret the loss of an able friend, to whose advice and assistance I had often to apply when in difficulty.

ly bled to death. Certainly we are not entitled to conclude from any known facts or experiments, that the brain must always and in all circumstances contain the same quantity of blood. When blood is taken from the arm, the brain sooner or later becomes affected, as is shewn by the occurrence of giddiness, singing in the ears, impaired vision, &c.; and if the operation be still continued, syncope, perhaps convulsions, will follow. We then favour the flow of blood to the head, and do all we can to impede its return, by placing the body in the horizontal posture, allowing the head, in severe cases, even to hang lower than the rest of the body. Were Dr Abercrombie's hypothesis correct, the circulation in the head, and consequently the functions of the brain, ought not to be materially affected by position; it ought to be nearly the same whether the body were supported upon the crown of the head, or on the tuberosities of the ischia. In a practical point of view, then, both experience and common sense loudly rebel at the bare idea of such notions as those entertained by this author; for if it were wished to subdue a true inflammatory action in the arterial system of the brain, a vein must not on any account be opened, and more particularly the jugular, because by emptying the venous system within the skull, or doing any thing which has a tendency to empty it, as a matter of course it must follow, that the quantum of blood in the arteries will be increased in the same ratio, because the vessels of the brain must always contain the same quantity,—if there be too little in the veins, a proportional accumulation must take place in the arteries. Upon the same hypothesis, the converse must also hold good, viz. that when there is great accumulation of blood in the veins of the head, acute action ought to be an impossibility; and the most effectual method of extinguishing inflammation in the brain would be to place ligatures on the jugulars, or by some other means to impede the return of blood from the head. Cupping, leeching, and the application of ice to the head, ought also upon this principle to be injurious rather than beneficial, and the head and shoulders should be placed in a depending rather than an elevated position.

In conducting this important critical examination of Dr Abercrombie's doctrines, I have not availed myself of the arguments

which could be fairly drawn from the experiments of Drs Carson and Barry, by which it would appear that the heart exerts a *sucking*, as well as a *propelling* power, and according to which Dr Abercrombie would have still greater difficulties to contend with. Neither have I taken advantage of certain anatomical facts respecting the cavities in the brain—the free communication between the ventricles of the brain and the bony canal which contains the spinal marrow, nor of the serous fluid which is known to exist in and about the brain and spinal marrow, and which is found on dissection to vary so much in quantity. I have seen many dissections made with a view to ascertain whether there existed a communication between the ventricles of the brain and the spinal marrow. The subjects being placed on the face, the slightest pressure made on the surface of one of the hemispheres, caused a wave of fluid to ascend beneath the arachnoid of spinal marrow as high as the 4th rib. Pressure applied on both sides of the brain, caused the fluid to mount over the convexity of the back, and find its way to the inferior part of the spinal canal.

CHAP. II.

INFLAMMATION OF THE BRAIN AND ITS MEMBRANES.

1. *Inflammation of the membranes of the brain as the disease occurs in adults.**—It must be carefully kept in recollection, that in all inflammations there may be not only several degrees of the diseased action, as the acute, sub-acute, and chronic, but there may also be a congestive variety, giving various shades of symptoms. The extent and duration of the disease, the age, sex, and constitution of the patient, must also necessarily give to the symptoms a wide range of character. Hence, a person who has enjoyed robust health up to the period of an attack of inflammation of the membranes of the brain, will generally be affected in a different manner from another, who, for months before, had been daily losing blood in consequence of hemorrhage from the nose, the uterus, or the bowels. Inflammation of the membranes of the brain may also be compli-

* *Under this head, I shall treat of inflammation of the arachnoid and pia mater ;—because there are no diagnostic symptoms by which we can distinguish inflammation of the one membrane from that of the other ; but as this distinction is interesting in the present state of our knowledge with reference to morbid anatomy only, I shall defer for the present the further consideration of the subject. I believe that all pathologists, especially the French, have attributed too many of the phenomena of inflammation of the membranes, to the arachnoid, and have overlooked the influence of diseased action in the pia mater.*

cated with diseases of the lungs, heart, kidneys, or some other organ, producing endless modifications: therefore it is impossible to convey a correct notion of a disease, by means of a definition containing an enumeration of a few of the symptoms.

Cullen has classed all the acute, sub-acute, and chronic diseases of the brain and its membranes under one head, which he has termed Phrenitis; and the following is his definition:

"*Pyrexia vehemens; dolor capitis; rubor faciei et oculorum; lucis et sonæ intolerantia; pervigilium; delirium ferox, vel typhomania.*"

This definition will neither suit inflammation of the membranes of the brain, nor of its substance. It represents a case of very rare occurrence indeed, and one which is therefore an exception to the rule. Those who have studied nature, will join me in stating, that we rarely, if ever, see the combination of symptoms as above described; and that a patient may show them all, without the existence of *inflammatory action*. On the other hand, we often meet with inflammations within the skull without symptoms of fever, the face being decidedly pale, instead of red: and the pain of head is not always a prominent feature of the disease.

Vogel had probably similar views in his mind when he declared, that "all the acknowledged symptoms of inflammation of the brain are equivocal, not only as to a distinction of one morbid part from another, but as indications of inflammation in any part."

Phenomena of inflammation of the Membranes of the Brain.—1. This disease sometimes attacks a patient in the following manner: There is a well-marked rigor followed by pyrexia, intense headache, redness of face and eyes, intolerance of light and sound, violent delirium, pulse at first considerably above 100. In a day or two coma steals on the patient, followed by partial or general convulsions, terminating in death. This, as has been already hinted, is the rarest case to be seen in practice; and it is unaccountable to me how Cullen should have been led, in drawing out a description of the disease, to choose it as his model.

2. Cases are sometimes met with, in which the first prominent symptom is convulsions; but upon making minute en-

quiry, we shall generally find that the patient had been for some days out of his usual state of health; that he appeared drowsy, and rather inactive. There may be only one severe convulsion followed by paralysis, coma, and death; or there may be repeated convulsions for days, with intervals of sense, till the fatal termination, which is generally preceded by paralysis and coma.

3. At other times the disease comes on with severe headache; violent terror producing loud and long screaming, attended with considerable disturbance in the intellectual functions, so that the patient can scarcely give any account of his sensations; and coma soon makes its appearance.

4. Occasionally a patient complains for perhaps a week of slight feverish symptoms, and tinnitus aurium, but does not suffer much from headache; nor is he observed to have more intolerance of light or sound than most patients labouring under fever, in which the brain is not peculiarly affected. He may complain most of giddiness, and a feeling of weight on the crown of his head; his bowels are observed to resist the action of laxative medicine much more than usual; his pulse may be about 100, without any characters indicating a serious affection: the heat of skin may be somewhat increased at night. At length restlessness gives way to what is thought to be drowsiness; the patient does not answer readily when spoken to, which is attributed to deafness; and as this is neither an uncommon, nor a bad symptom in fever, it is not much regarded, particularly as, when roused, the patient appears quite sensible, and will take any thing which is offered him. But, at last, the coma becomes profound, the pupils dilated; he will sometimes grind his teeth; squinting will be observed, with partial or total blindness; paralysis of one side of the body sometimes follows; and the patient will gradually sink after repeated convulsions, which in most cases are in the first instance general, but by degrees become more partial, till at last they only affect the muscles of the face, and some of those connected with respiration. Occasionally, however, the convulsions are partial from the first, affecting the muscles of one superior extremity; perhaps only some of the muscles, in

which case the hand will probably be found to be twisted during the paroxysm.

5. A fifth form occurs without much fever, but with some degree of headache, intolerance of light and sound, and considerable giddiness. The patient may complain very much of nausea and pain in the stomach, which being the most prominent symptoms, together with constipation, the disease may be attributed to disorder of the digestive organs. Vomiting sometimes takes place, and becomes intractable; every thing taken into the stomach being quickly rejected. The cerebral disease goes on advancing, but in such a manner as to avoid notice, till at last the patient becomes drowsy and comatose, or convulsions appear, and death sooner or later follows.

6. Another form under which the disease advances, is: A patient, after being affected with some acute disease for two or three weeks, during which he may have been bled, and otherwise properly treated, the original disease appearing to be quite subdued, may complain, while in a state of collapse, of passing restless nights, being disturbed and agitated by frightful dreams. His strength suddenly becomes increased so as to require restraint to keep him in bed; his pulse is weak, perhaps quick, so weak and quick as scarcely to be counted; the extremities are cold, and cannot by the most assiduous attention be kept warm; one or both cheeks present a flush, the size of a shilling, the rest of the face being deadly pale. The raving is constant. There may be *subsultus tendinum;* picking or twisting the bedclothes, or one or both hands may constantly be in motion, wiping the angles of the mouth and eyes, or engaged as if drawing hairs, either from the fingers of the opposite hand, or from some parts of the face. The tongue, as in the progress of most of these cases, becomes parched and brown; paralysis takes place, with convulsions or coma; and as death approaches, respiration becomes difficult, and the pulse gradually weaker.

7. A person may complain of passing restless and uneasy nights; he cannot lie long in one posture. When about to fall asleep, he is annoyed by some unpleasant thought, or

frightful dream; the feet, perhaps cold when he went to bed, become very hot; and he has some uneasiness in his head. Towards morning, a slight relieving perspiration takes place; he sleeps a little; and awakes with some degree of headache, which is attributed to bile, or to the bad position of his pillow. His urine may be very scanty and high coloured; the mouth clammy, and the tongue foul; but after being washed and dressed, and taking his breakfast, he feels better, and proceeds to attend to his business. During the course of the day, he is weak, and experiences a difficulty in applying his mind to the affairs which usually occupy him. Every thing he does, costs him a struggle; his feet are cold; he feels chilly, and every exposure produces a tendency to rigor. He is observed to be impatient and irritable, even about trifles; and he longs for the hour when his business is to terminate; but he retires from it with increasing headache. When he goes home, his family attribute his complaints to cold, or to over exertion, or to weakness, and he is pressed to take nourishment, and even wine, or spirits and water. These symptoms may be relieved or may continue, the patient getting better and worse for some days, till at last symptoms of a more urgent nature take place, which unequivocally announce the progress of some serious disease; and when a physician is sent for, he finds symptoms denoting a very dangerous affection of the brain, or a complicated case which suits his notion of typhus fever. The case may be now beyond the reach of remedies, and coma soon becomes profound.

In the general remarks, it has been observed how very variable is the pulse in diseases of the brain, even in the course of the same day. The same remarks are peculiarly applicable to inflammation of the membranes of the brain. The pulse may be quick,—140, 150, or 160, and weak, for in general, when the pulse is so very rapid, it is also very weak; or it may be above 100, and rather strong; it may be at the natural standard, or a little above it, and either strong or weak; or it may be much below 70, very strong, or only of the proper strength; and under all these conditions the pulse may be irregular, intermitting, and varying very much in strength. Upon the whole, a very slow or a very quick pulse indicates

danger; perhaps the former is a more dangerous symptom than the latter, as a pulse often becomes very quick in irritable constitutions, under the application of the usual remedies employed for the cure of inflammation.

The observations already made in the general remarks respecting the heat of the skin, and the other symptoms usually denominated febrile, equally apply to this part of the subject, and therefore need not be repeated.

From a careful examination of the eyes, and general expression of the countenance, the experienced physician gathers much assistance in forming an opinion whether the brain is or is not affected. The pupils, in the first stage, are generally found more or less contracted; as the disease advances, they often become dilated. One pupil may be dilated, while the other is contracted. An immoveable pupil, whether dilated or contracted, is an important symptom. In almost all cases of inflammation of the brain, the conjunctiva is very vascular; in the worst cases, I have observed an angular patch, having more or less of a blood-shot appearance, situated near the inner canthus, the apex pointing towards the cornea, the latter part appearing unusually dry and slightly muddy. When there is wild delirium, the eyes have a very brilliant, animated expression; when there is coma, or a tendency to it, they look stupid, and are sometimes void of all expression. There may be squinting of one or both eyes, or they may roll in a frightful manner, may appear as if fixed in their sockets; or one or both may be turned up, giving the expression denominated pathetic. The eye-lids are generally kept closed in the commencement of affections of the cerebrum, perhaps to avoid the light; as the disease goes on, however, one or both are observed to be half-opened; and there may be partial or total blindness of one or both eyes. This, it may be remarked, is always a more unfavourable symptom than deafness. With respect to the expression of countenance, it is sometimes animated, bold, and even audacious; at others, the expression is subdued; in some instances, there is a total want of animation, with an expression of stupidity, as if the mind were not acting at all; and sometimes there is an appearance exactly resembling that of a man considerably advanced in a state of

inebriation. Occasionally the teeth are observed to be clenched, approaching to the state of locked jaw. Sometimes there is an expression as if the patient were labouring under violent pain; at others, it gives the idea of passive suffering.

The speech is variously affected. Patients sometimes shew great volubility; at other times they are taciturn. In cases where there are marks of considerable oppression of the brain, the words hang as it were in the mouth; the patient forgets the names of his nearest relatives, even before he is observed to confound one individual with another, and he frequently falls asleep before he has half finished a sentence. The tongue may be paralyzed partially or completely: in general, when the patient shews it, it appears in a tremor; or it may be in constant and violent motion, pushing out the cheeks, or protruded out of the mouth. It may be either moist and loaded, or dry and covered with sordes.

Respiration is not necessarily affected in inflammation of the brain or membranes; sometimes, however, it is very much so; but dissection has yet to reveal upon what lesions this depends. Occasionally, particularly in young persons, the respiration has a crowing sound, resembling that in the back draft of hooping cough, of which I shall speak more fully under the head of hydrocephalus. Before a convulsive paroxysm the respiration sometimes becomes very much hurried, and after it subsides it is so slow as to appear altogether suspended.

Causes of Inflammation of the Membranes of the Brain.—Experience teaches us that some individuals, from peculiarity of constitution, or from hereditary conformation, are more liable to inflammation of particular organs than others. Whatever cause disturbs the balance of the circulation between the venous and arterial systems, may cause inflammation of the brain and its membranes. In the fevers which prevail in this country, and which are called typhoid, there are symptoms decidedly indicating disease of the brain from venous congestion; and it is a nice matter to discriminate between a case purely of this nature, and one of inflammation; and still more difficult if the two are united. In the one case, stimulants may be used with advantage, and in the other, they

may do irreparable injury. Cold; fright; external injury; suppression of any of the excretions; the sudden disappearance of an old discharge or eruption, or the healing of an old ulcer; exposure to a vertical sun with the head uncovered, are all causes of inflammation of the brain. But constipation of the bowels in a plethoric habit, in addition to some of the causes just enumerated, most frequently, I believe, occasions this disease. Infants are more liable to inflammation of the membranes of the brain than adults, particularly during the period of dentition. This appears to be owing to determination of blood towards the head, caused by the irritation of the gums. Although men are more frequently attacked than women, yet it is a mistake to suppose, that thinking men are more liable than others to diseases of the brain. It requires something more than the continued exercise of thought and ardent study; there must be conjoined long-continued anxiety of mind, high living, abuse of stimulants, want of exercise, cold feet, or inattention to the bowels. All these circumstances predispose to this affection.

Appearances on Dissection.—A person may die in the first stage of inflammation of the brain, when the balance of the circulation in the vessels of the head is disturbed; and the patient is said to owe his death to simple apoplexy. On dissection, the only diseased appearances discovered, will be considerable engorgement of the cerebral vessels, with more or less effusion of limpid serum. In inflammatory affections of the brain, we must not always expect to meet with effusion, because the patient may die before this result has taken place, and death may be owing to what is called the shock of the disease, or that produced by the remedies.

We sometimes meet with considerable venous engorgement, not only of the great sinuses, but of the trunks of the veins running into them, and very small vessels containing red blood will be seen arborescing with each other in every direction. In many decidedly congestive cases, I have seen the carotid and vertebral arteries distended with dark-coloured blood; occasionally ecchymosed spots are discovered here and there on the surface of the brain.

Pure *arachnitis* must be a rare disease. The arachnoid, in

a state of health, is not a very vascular membrane; at least its vessels do not convey red blood. In my whole experience, I have not met with above six cases of inflammation of the arachnoid membrane. In ninety-five cases out of the hundred, the effusion is situated, not on the serous surface of the arachnoid, but between it and the *pia mater*. In general, if the least effusion be discovered between the membranes of the brain, and in the ventricles, it is noted down without farther examination as the result of inflammation; but I believe there is always some fluid between the two membranes in a state of health. The same remark equally applies to the ventricles; besides which, it must be recollected that venous congestion, or any other cause tending to impede the circulation in the veins, will speedily give rise to a great increase of the quantity of fluid in the brain; and this is what Cullen and others have called serous apoplexy. If, however, there have been febrile symptoms during life, and a considerable effusion found after death, and particularly if conjoined with vascularity, the appearances may be attributed to inflammatory action. This is rendered more certain if the effusion look turbid, or contain flakes of coagulable lymph; if the convolutions of the brain be glued together by lymph, extending either from convolution to convolution, or dipping down between them; if the arachnoid which lines the *dura mater* adhere to the proper arachnoid coat; if the arachnoid coat be ulcerated, or capable of being separated from the subjacent membrane in tolerably large flakes. In inflammation of the membranes of the brain, portions of the cerebral mass are occasionally found to adhere very firmly to the surface of the *pia mater*, such portions appearing softer, and of a redder colour, than the rest of the brain. There is one appearance of the arachnoid, to which my attention was first directed upwards of twenty years ago by my lamented friend the late Dr Gordon, as indicative of deep-seated inflammation. This is a dry, unshining appearance of the membranes of the brain; but I believe it is more frequently observed in inflammation of the substance of the brain, than in that of the membranes.

The membranes of the brain are sometimes found to be much thickened by a deposition of coagulable lymph

between them, both surfaces exhibiting considerable vascularity.

There are small white bodies found on the arachnoid membrane in the close neighbourhood, and in the course of the longitudinal sinus, which are called *glandulæ Pacchioni*. When large clusters are discovered, they are sometimes, perhaps erroneously, attributed to inflammation. Small granular tubercles are occasionally seen on the arachnoid; these generally exist in connection with the same kind of degeneration in the lungs. On slicing the hemispheres of the brain to reach the lateral ventricles, the brain is observed to present many red points, which, if examined for a few minutes, will be seen to yield a little blood, and eventually to become small drops. The ventricles are sometimes found greatly distended with a serous fluid; and when much distended, the communications between them will be seen much enlarged; perhaps a part, or the whole of the *septum lucidum*, may be soft, broken down and ragged. Effusion is rarely, if ever, seen in one lateral ventricle, without being found in the other. I should not be inclined to attribute two or three drachms of serum in the ventricles to inflammatory action; and should be still less inclined to attribute the death of the patient to the effects of such an effusion, because I believe there is always some fluid in these cavities. The lining membrane of the ventricles occasionally shews a considerable number of red vessels, particularly if the disease have been of long continuance; the membrane itself may be softened, or thickened; but this appearance shall be more particularly spoken of under the head of hydrocephalus. The choroid plexus consists of a congeries of small blood-vessels connected together by a very loose cellular membrane. I have seen large flakes of yellow lymph adhering to this plexus, the *corpora striata* and *thalami*. The plexus is sometimes thickened, granular, and occasionally vesicular. The vesicles are often mistaken for hydatids; but they appear to me to have no resemblance to these bodies, and to be nothing more than an effusion of serum into different parts of the cellular tissue. I attribute much of the effusion found in the ventricles to diseased

action of the choroid plexus, as well as to that of the membrane lining the ventricles.

On removing the brain from the skull, considerable vascularity will in general be discovered in the membranes at the base of the brain, and when there is any effusion, it will be found generally about the central parts, involving the origin of all the nerves, with the exception perhaps of the olfactory. The effusion may consist of a colourless fluid, but in general it is turbid; lymph of considerable thickness and consistence is very often found extending directly backwards from the point of decussation of the optic nerves to the termination of the *medulla oblongata;* and there are several preparations and drawings in my Museum, in which the effusion is in such quantity, and the membranes so thickened, that the origins of the nerves, the circle of Willis, the basilar, and even the vertebral arteries, are all conglomerated in one confused mass, and some of the parts, particularly the basilar artery, and the vertebrals, are twisted out of their natural situation. In some instances, I have seen the lobes of the brain adhering by an interposition of lymph. I have also observed the same appearance in the hemispheres, and in two or three instances the adhesions were old and extensive,—no doubt the result of a former inflammatory attack.

Treatment of Inflammatory Affections of the Brain.—There are two difficulties to be encountered in practice. The first is to ascertain whether inflammatory action be actually going on in the brain; and secondly, if it be going on, whether the disease is not already too far advanced to admit of the application of the most potent remedy for the cure of acute disease,—general blood-letting. The most experienced physicians are sometimes at a loss to determine these two points.

The remedies necessary are—bleeding, general and local; purgatives; antimony; cold applications to the head, and warm to the extremities; blisters, and antiphlogistic regimen.

There can be no doubt of the propriety, nay, the necessity of opening a vein in the arm, and abstracting a sufficient quantity of blood, if the inflammatory action be acute, if there be marks of venous congestion in the head, and if there are

none of the usual signs of extensive organic lesions present. Even should these exist, if the pulse preserve some degree of strength, if the respiration be natural, the heat of surface considerable, the tongue not parched, and the teeth not covered with sordes, bleeding may be tried. But in all cases of inflammation, of whatever organ, the lancet should be cautiously used, if used at all, when the tongue is dry and parched, when the pulse is exceedingly rapid, and more particularly if it be irregular. It appears to me, that bleeding from the arm in cerebral affections, has advantages over opening the temporal artery, independently altogether of the disagreeable consequences which sometimes happen from the latter operation. By opening a vein in the arm, a very considerable determination of blood is necessarily produced towards the extremity operated upon, and the blood flows more rapidly. The right side of the heart itself is perhaps more immediately relieved by preventing the usual quantity of blood from returning to it, which will in all probability favour the return of blood from the head, particularly if the shoulders be considerably raised, or if the patient be bled in the erect or half-erect posture.

No physician, however wise and experienced, can tell what quantity of blood ought to be taken in any given case. To bleed in a quantity much under that which is required to subdue a disease completely, is almost worse practice than not to bleed at all; because the patient is robbed of much strength without destroying or decidedly mitigating the diseased action, and thereby the subsequent treatment is embarrassed.

When bleeding a patient late in a disease, and in doubt whether the application of this remedy may not do harm, the practitioner should be watchful of the expression of the countenance, the state of the respiration, and the pulse. If the countenance become pale and haggard; if the respiration should be either quicker or slower, or more laborious; and if the pulse flag, or become weaker and quicker, then we may be certain that general bleeding should not be pushed further, and our hopes of safety must depend upon other means. Even in the most favourable cases for bleeding, it behoves physicians either to use the lancet themselves, or to see the operation

properly performed. I am persuaded that valuable lives are often lost in acute diseases from neglecting these points, and particularly in the class of diseases now under consideration. It is of great consequence to watch the effects as the operation is going on, and to be particularly observant after a large quantity, say 30 or 35 ounces, have been abstracted. The finger should then be constantly upon the radial artery of the opposite arm, to notice the pulse; and when in doubt about proceeding further, it is by far the wiser plan to tie up the arm, reconsider all the features of the case, and in the course of an hour or two, to renew the bleeding, or not, according to circumstances. But in order to shew the success of a bold measure, judiciously employed, very late in a bad case, the following short history is quoted. A young gentleman, aged ten years, after an attack of scarlatina, became dropsical. Every part of the cellular tissue was infiltrated, even the scrotum was enormously distended. All the usual remedies were employed, except V. S., and I was induced to avoid taking blood, from an idea that the patient was too weak to bear the remedy, and because the urine coagulated on the application of heat, and contained a very large quantity of albumen, the specific gravity being 1008°. One forenoon, when under the action of mercury, he appeared to labour under nervous symptoms. Smart laxatives were ordered; but in a few hours afterwards, violent tonic convulsions took place. My friend Dr Lewins of Leith was sent for; he opened a vein, and bled till relief was obtained. I weighed the blood next day, and found that two pounds avoirdupois had been abstracted. The boy had no return of the convulsions, the dropsical effusion diminished daily, and from that time his recovery went on rapidly.

In different parts of the first volume, I have endeavoured to impress upon my youthful readers the necessity of perfect devotion to the exercise of their profession; and that they will be successful in the means they employ for the cure and alleviation of diseases, exactly in proportion to the attention they pay to their patients. In inflammatory diseases of the viscera, and more especially of the viscus now under consideration, an hour's delay in the application of an important remedy

may cost a patient his life; the visits of practitioners should therefore be frequent, and I would not allow a longer interval to take place between the visits than two or three hours.

Leeches to the temples in considerable numbers are very serviceable; but the bleeding should not be allowed to go on long if the patient be much reduced. Warm water should not be used; and before the application of the leeches, it will be highly proper to have the head shaved.

Sufficiently powerful purgatives must be used. This is almost the only class of diseases in which drastic medicines should be administered, because the bowels are not only difficult to be moved, but experience has taught us, that considerable advantage is gained, not only by the evacuations, but by keeping up a constant irritation along the whole alimentary canal. I am in the habit of giving, in very severe cases, large and repeated doses of calomel or croton oil, or both conjoined. Three or four scruples of calomel may be administered in divided doses to patients in such circumstances without producing ptyalism. Should a sore mouth take place, it may be regarded as a very slight evil if the patient's life be saved. My reason for giving calomel in cases of inflammation of the brain is simply this: many eminent practical men have written so strongly in its favour, that I do not think myself justifiable in withholding it, although I place less confidence in its action than many others. But in no case do I relax in the employment of other, and, as I think, more potent remedies. The doses of laxatives should be repeated at intervals of three or four hours; and many cases which appear to be hopeless, and too far advanced in their progress to admit of depletion, have recovered under their free and constant use. But care must be taken that the purging be not continued too long. In proportion as the disease gives way, the doses are to be diminished, and the intervals between their administration lengthened.

The application of cold to the head is a most important part of the treatment, and the physician should see that the remedy is properly applied. It has been already mentioned, that the head should be shaved before leeches are put on; the mere removal of the hair will sometimes produce a consider-

able change upon the temperature of the head, and perhaps nothing further may be necessary; but if otherwise, iced water may be applied. A very good plan, and one which saves a great deal of trouble, is to put pounded ice or snow, mixed with salt, into a lage ox's bladder, till it is about half filled, and used as a pillow. A small bladder filled in the same manner may be laid across the crown of the head; a cloth dipped in iced water may be placed over the forehead. If these means cannot be obtained, the best plan is to bring the head over the edge of the bed, keeping it at the same time elevated, and to pour a small stream of cold water out of a jug or tea-kettle upon the head for five or six minutes at a time, taking care to have a basin properly placed underneath, to avoid wetting the bed or the floor. I have seen patients roused out of deep coma, and violent delirium subdued, by cold properly applied to the head, when bleeding had been unsuccessful. At the same time, we are to be careful not to continue the cold applications for too great a length of time, particularly after the patient's strength has been much exhausted, either by the long continuance of the disease, or the application of the more important antiphlogistic means. It is of very great importance to support the heat of the extremities, and more particularly in severe cases, which is to be done by frictions, hot fomentations, heated bricks, small flannel bags filled with hot sand, or bottles filled with boiling water.

Antimony, used in small doses as a contra-stimulant, is a powerful remedy in controlling the circulation after bleeding. It is a remedy which is of great assistance during recovery, and may be given from time to time when the patient's appetite is likely to be too much indulged, or when he is disposed to be too loquacious.

I beg to enter my strongest protest against the application of blisters to the head, or even to the upper part of the neck, in the acute stage of inflammation of the brain. They ought to be applied to the lower extremities. I urge this recommendation from the result of long and attentive observation; and independently of the disputed theory, as to whether the vessels of the head can contain more blood at one time than at another. Mustard poultices may be applied to the feet.

That these remedies may fail, however, and that advantage may be derived from more powerful means, the following case will strongly illustrate :—

Cornelius Hervey was attacked with fever in the beginning of winter 1823. In the course of the disease, he required several general and local bleedings, for the removal of slight local inflammations. On the 21st day of the fever, when perfectly sensible, and being in a state of very great weakness, he told me he had passed a confused restless night, and that he had had some headache, which he attributed to repeated errors of diet, and having overloaded his stomach. He was relieved by the exhibition of laxative medicines. On the 23d day, when he was reduced to a state of great debility, he became quite delirious, and so furious, that it required two men to hold him down in bed. The extremities were cold ; pulse weak at the wrist, of thready smallness, and beating 160 in the minute ; his head was hot, and there was a small flushed spot upon each cheek. During the two following days, four leeches were applied to the head, and afterwards ten, without any mitigation of the symptoms, and he was thought to be too weak to bear any further loss of blood. Ice was assiduously applied to the head from the commencement ; hot fomentations to the legs ; sinapisms to the feet ; and hot bricks were placed round the extremities. Still his legs and feet were cold ; the sinapisms, although frequently renewed, had not produced the least redness ; the pulse had become more feeble ; he raved incessantly ; there was subsultus tendinum to a great degree ; the tongue was hard, dry, fissured, and of a dark colour. As neither coma, convulsions, nor paralysis, had taken place, and as the pupils still contracted upon the application of light, it was thought that no organic mischief had as yet taken place ; and as the usual means had failed to produce heat in the extremities, hot spirits of turpentine, both separately and conjoined with *aqua ammoniæ*, was applied to the legs and feet, but without producing the slightest redness. Blisters had been applied to each leg and thigh the night before, but they produced no effect. As a last resource, a towel was dipped in boiling water, and applied to each foot. This measure succeeded in producing a con-

siderable degree of redness; but it is remarkable, that there was only one very small vesication, about the size of a sixpence, produced on the left instep.

At the moment of the application of the boiling water, he became calm and sensible, looked about him as if he had awakened out of a sleep, and knew every person in the room, which he had not done for several days, and he complained of great pain in his feet. The pulse soon became more distinct, less frequent; and the tongue moist. Blisters were again applied to the thighs. Towards the afternoon he became worse, and at night I found him delirious and insensible, with *subsultus tendinum*, a dry tongue, and a small quick pulse. The extremities, and particularly the feet, were quite cold, although warm fomentations and hot bricks had been alternately applied, and although the scalded feet were dressed frequently with hot spirit of turpentine to keep up the action which had been excited in these parts. The blisters which had been renewed on the thighs had not risen. Boiling water was again applied to both legs, from the knees to the ancles. The relief was as instantaneous and decided as had been produced by the same means in the morning, but it was permanent, and from this time his recovery went on without a bad symptom. A superficial slough separated from each leg in the course of ten days, and there was some constitutional irritation produced during the course of that process; but the ulcerations healed kindly. He was for several months very lame, not from the immediate effects of the ulcerations, but from the contraction of the flexor muscles of the leg, which inconvenience arose from the bent position in which he kept his limbs during his illness, but he gradually recovered the free use of them; and the last accounts I heard six years afterwards, informed me that he was in the enjoyment of perfect health and strength, and able to earn a livelihood for his family by manual labour.

To conclude what I have here to say of the treatment of inflammatory affections of the brain, it is necessary to mention that the diet should be strictly antiphlogistic for the first few days; it ought chiefly to consist of drinks, such as thin gruel and arrow-root; and during recovery, great care should be

taken to avoid bringing up the patient's strength too suddenly. The utmost quietness is absolutely necessary in all severe diseases; but it is more particularly essential in those of the brain; and for a considerable period, patients who have recovered from a severe attack of this kind, should be kept in a very tranquil state both of mind and body. Application to business must be strictly forbidden, sometimes for several months, and great attention must be paid to diet, bowels, clothing, and keeping regular hours.

Immediately after the severity of the disease is subdued, and more frequently during recovery, opiates are often productive of great benefit, by allaying irritation both of body and mind, and producing sleep.

In many cases of inflammation of the brain, the secretion of urine is either suspended or suppressed; but in every case practitioners should examine very carefully into the state of the bladder, as sometimes the secretion of urine is rather increased in quantity than diminished, and I have seen much distress occasioned by its retention in the bladder.

Inflammation of the Substance of the Brain.

The profession is much indebted to Lallemand, Rostan, Georget, and others in France, and to Dr Abercrombie in this country, for many important facts concerning inflammation of the substance of the brain, and the peculiar softened condition into which the organ is reduced by diseased action.

Symptoms of inflammation of the substance of the brain.—Inflammation of the substance of the brain seldom exists uncomplicated; it is often the result of congestion in the vessels of the head, and is always marked by loss of balance of the circulation. Like inflammation of the membranes, there may be different shades between the acute and chronic forms; the attack being sometimes sudden, but for the most part insidious. The precursory symptoms are generally similar to those which precede inflammation of the membranes.

The functions of the brain are impaired; the patient complains of *vertigo* or *tinnitus aurium;* a feeling of weight in the head; headache; indeed Dr Abercrombie describes this last

symptom as being very severe, and as giving to the disease a peculiar character, but I cannot say that this consists with my experience. There are optical delusions, strabismus, contraction or dilatation of the pupil; difficulty is sometimes experienced in articulating words; the patient's temper is observed to be much altered, and easily irritated; the pulse may be quite natural. Through the day, the patient does not appear to be very ill, but in the night the symptoms become much aggravated. Perhaps no alarm is yet taken, till weakness is observed to affect one side of the body, or convulsions take place; and when a medical man arrives, he finds the patient affected with paralysis, and more or less coma.

Inflammation of the substance of the brain sometimes attacks a patient more insidiously. He may complain of *lumbago* and rheumatic pains in the limbs, or may be affected with vomiting or purging; the true disease is perhaps not detected till coma is decidedly marked.

Inflammation of the substance of the brain occurs in the progress of the simplest, as well as the most severe form of fever in this country; it may also take place when the body is much weakened by the long continuance of hæmorrhage. In fact, this disease occurs under circumstances as different as those already so fully described in inflammation of the membranes of the brain.

When the disease is somewhat advanced, there is considerable stupor, and more or less insensibility, without violent delirium. The power of speech is lost early, perhaps before intelligence is destroyed. The pupil still contracts, shewing sensibility of the retina. The countenance varies a little in appearance; sometimes there is an expression of severity with a frowning brow; at others it looks stupid and vacant. The patient is observed to be deaf, and vision imperfect. At length paralysis takes place on one side of the body, but the superior extremities are more frequently affected than the inferior, and the flexor muscles of the paralyzed limb are in a state of morbid contraction. It would appear also that the limb preserves a degree of sensibility, for the moment the arm is touched to count the pulse, or any attempt is made to extend the fore-arm,

the contraction becomes more violent; but towards the fatal termination of the disease, it becomes flaccid and insensible.

Lallemand thinks it important and highly characteristic, that the pain, and the disease of the brain, be on one side of the head, and this peculiar affection of the limb on the opposite side of the body. Convulsions frequently take place, and during these attacks, the muscles of the paralyzed limb are affected. The rigidity of the flexor muscles is not always permanent, but takes place occasionally, sometimes alternating with general convulsions.

A urinous smell is also said to be characteristic, but this is probably a mistake, owing to a neglected state of the bladder, or to a constant dribbling of urine which soils the bed. Constipation is a very general symptom, although occasionally an opposite state of the bowels exists. Respiration is not necessarily affected, till towards the last. The pulse is seldom much altered, till towards the termination; the French writers say it is never affected till that period, unless some other organ is diseased, but this appears to me to be a too arbitrary statement; indeed, the pulse is frequently slower than natural. French authors also allege, that when there is violent delirium and a quick pulse, inflammation of some other organ or tissue has taken place, although Rostan states that delirium sometimes shows itself in the first period of ramollissement. The common position of the patient is upon the back.

The characteristic symptoms are, an absence of violent delirium; speedy insensibility; paralysis, accompanied by morbid involuntary contraction of the flexor muscles; a urinous smell. Cases occasionally occur in which there is a different train of symptoms, and in which paralysis and rigidity do not co-exist. Indeed, Lallemand observes, that in some cases there is no paralysis of the voluntary muscles, in which circumstances, he alleges that the inflammation has always its seat in parts of the brain which have no direct communication with the spinal marrow, viz. the *corpus callosum*, the *septum lucidum*, and the *fornix*. It is alleged, that when the paralysis is general, the inflammation occupies the *tuber annulare*, or is so extensive as to occupy a whole hemisphere; so much so,

that the other side of the brain becomes greatly compressed by the tumefaction of the diseased parts.

An interesting and very fatal affection of the brain and its membranes, connected with disease of the petrous portion of the temporal bone, and a discharge from the ear, has attracted the attention of many distinguished medical authors. The disease is frequently very slow in its progress: often no suspicion of disease in the brain is entertained prior to dissection, when considerable portions of its substance have been found either in a state of softening, or converted into pus; the membranes being partially destroyed, or very much inflamed and thickened.

Acute inflammation of the substance of the brain often terminates fatally in seven or eight days, frequently in a shorter period, but is sometimes prolonged till the third week. There is no doubt that it is a very fatal disease; but not so deadly, under proper treatment, and in persons not too aged, as is generally represented. I have seen several recoveries take place in circumstances which were at first sight most unpromising; and in five instances in particular, where all the characteristic, and all the bad symptoms described by Lallemand and Rostan, were present. In two of these cases, Dr Kellie was conjoined with me in consultation. In a third, I had the able assistance of Dr Abercrombie. A fourth I was requested to see by Dr Moffit, surgeon of the 70th regiment; and a fifth I attended with my friend Dr Lewins.

I shall here subjoin the particulars of the fourth mentioned case:—

J. S. aged 34. His complaints began with nausea and purging, which continued for several days, during which time he frequently complained of slight headache. On the 5th of August 1827, after appearing to be convalescent, he complained towards evening of considerable headache, and general debility; pulse 80; face rather flushed; tongue white; pupils dilated. The head was shaved, and 36 leeches applied; and he took a laxative medicine. In a few hours he appeared to be gradually sinking into a state of insensibility; the face flushed, and the expression of countenance anxious; pulse 85; tongue white. Next morning he was found in a state of

coma, lying on his back, with general paralysis; but the flexor muscles of both arms were rigidly contracted, the fingers seemed to be in constant spasmodic action, and his jaws were clenched; pulse 85, rather weak and intermitting. A vein was opened in the arm, and 36 ounces of blood were abstracted; a blister was applied between the shoulders; cold lotion to the head.

7*th*, Passed a disturbed night; no improvement in the symptoms; insensibility continues, and the state of the extremities is the same; urine and feces passed involuntarily; countenance has a severe expression; eyes fixed; pupils dilated, and he appears to be perfectly blind; pulse 85, and of natural strength. Ice and 30 leeches were applied to his head. *Vespere;* he has derived some benefit from the leeches, which bled profusely; the countenance has lost the expression described in the morning; he opens his eyes occasionally, and takes drink when offered to him; pulse 90, and soft. The application of ice to be continued to the head.

8*th*, Had a better night, and appears rather improved; the countenance has a milder expression; but the pupils are dilated, the eyes fixed, and to all appearance blind; the paralysis of the superior extremities, with rigidity of the flexor muscles of the arms, still continue, together with the involuntary action of the fingers; the lower extremities are still paralyzed, but not rigid; passes urine and feces involuntarily; pulse 95. V. S. ad xii. and a fresh blister applied between the shoulders, the former one not having risen. The evening report states, that the symptoms have progressively improved since the bleeding in the morning, and he is so far sensible as to ask for drink, which he appears to relish; pupils more natural; tongue white; the blister is now beginning to rise. The ice to be continued to the head.

9*th*, Appears better, and has in part recovered his speech, recollection, and vision; blister rose well. In the evening he was found gradually improving; had one stool since the morning, of which he gave previous notice. The cold applications omitted.

10*th*, Had some good refreshing sleep during the night; countenance natural; pulse soft, and although quick it is

regular; asked for food, and got up without assistance to the close stool. From this time his improvement went on rapidly. In five or six days he was able to sit up in bed for two or three hours at a time; all the functions were natural; and in a short time he was able to walk about. His ultimate recovery was complete and permanent.

In the case which I saw with Dr Abercrombie, the appearances were fully more unpromising, and the diseased state of the brain of longer continuance. For ten days or a fortnight, this patient had had symptoms which resembled the regular paroxysm of an intermittent; and it was supposed he was affected with that disease. During each attack, the functions of the brain were observed by his friends to be considerably embarrassed, and coma followed the last. In this case there was also remarkable rigidity of the flexor muscles of one of the arms, with paralysis of the extremity. The practice employed was very active, and although employed late, it was successful, but the patient's recovery was more tedious.

Causes of inflammation of the substance of the brain.—The causes of inflammation of the substance of the brain are the same as those in inflammation of the membranes, and need not be here repeated. But it may be mentioned, that the disease is frequently produced in the substance of the brain around tumours and tubercles which may have existed for years, without occasioning much annoyance to the patient, till some accidental circumstance rendered them a source of irritation to the surrounding parts. This class of cases generally terminates fatally. I have a number of drawings and preparations which shew these appearances; and it is strange that Rostan should never have met with a case of this kind; but at page 70. of his work, he says he has no doubt that such a complication may exist. Inflammation of the substance of the brain, terminating in ramollissement, also frequently takes place round apoplectic depositions, whether small or large. I have seen it round an effusion of about four ounces of blood; in these cases the symptoms are in general rapid in their progress to a fatal termination.

Appearances on Dissection.—When the structure destroyed is extensive, and particularly when situated in the central parts

of the brain, the arachnoid coat sometimes looks dry, having lost its usual shining appearance. On making slices of the brain, more particularly in the neighbourhood of the diseased part, its substance will shew many red points, out of which blood will ooze; the white substance of the brain presents a somewhat reddish colour; sometimes it is as red as if a penful of red ink were spattered over it; occasionally there is a deep mulberry spot of larger or smaller size.

The central parts of the brain, are most frequently the seat of ramollissement, viz. the walls of the lateral ventricles, the septum lucidum, and the fornix. These parts are sometimes wholly converted into a white liquid matter like cream, shewing the septum lucidum ragged and broken down, with some effusion into the ventricles. This appearance is sometimes very extensive; at others it is confined to the walls of one ventricle, or it affects the septum lucidum and the fornix. When the disease is not far advanced, the degree of softening is so slight, that it is impossible to determine whether the part has been diseased or not; but in this case we are sometimes assisted by discovering very considerable redness in the surrounding cerebral mass; at other times the softened part is of a red colour, as if blood had been mingled with the substance of the brain itself. Some suppose that inflammation of the substance of the brain, is more frequently met with in the white substance than in the cortical. Andral thinks not. I have seen it in both, but am disposed to think it is more frequent in the white substance.

Perhaps the white liquefaction, which is most frequently seen in the *corpus callosum*, the *septum lucidum*, and *fornix*, may be produced by a somewhat different cause from the red softening; which is most frequently seen, according to my observation, in the *corpora striata*, *thalami optici*, and *tuber annulare*.

Pathologists are much divided in opinion, as to whether *ramollissement* of the brain is or is not the effect of inflammation. Rostan admits it is sometimes the effect of inflammation; but asserts that more generally it is a peculiar degeneration of the brain, unconnected with inflammation, which has its own signs and proper characters. He appears to have

three reasons for considering that it is not generally a product of inflammation :—1*st*, In the cases which terminate in this softening, the patients have not been affected with headache; 2*d*, Febrile symptoms have not existed; 3*d*, The colour of the substance of the brain often appears not to be in the least changed. Rostan's subjects were all old; he never saw the disease in a very young person, and only once in an individual under 30 years of age; but in that case there was no dissection.

Dr Abercrombie, with a view of reconciling the opposite opinions which prevail on this interesting subject, throws it out as a probable conjecture, that there may be two causes, each of which may produce ramollissement; the first is inflammation, and takes place in young people; the second is in consequence of a failure of the circulation depending upon diseases of the arterial system, and this occurs in old subjects. He supposes that this degeneration of the brain has a close resemblance to mortification in other tissues; but this appears to be a forced analogy. The effect, upon all tissues, of inflammation in its first stage, is to soften them,—at least this is the case with the lungs, the liver, and the spleen; and why not with the brain?

Sometimes inflammation of the substance of the brain terminates in the formation of one or more abscesses; and we frequently observe the same effort of nature to circumscribe and confine pus in the brain, which takes place in other tissues, viz. the formation of a false membrane round the diseased part.

A medical friend lately presented me with a brain, where there were innumerable small abscesses, resembling so many phlegmons, dispersed in every direction through the cerebrum and cerebellum. Some were situated on the surface of the brain and cerebellum contiguously to the membranes; others in the very centre of its substance. Some were in the white, others in the grey portion.

The pus found in abscesses of the brain, resembles the same matter found in other tissues of the body: sometimes it is quite inodorous; at others very fetid. I am not aware that any symptoms have been remarked, as indicating the forma-

tion of pus in the brain, which discriminate it from other organic lesions.

Treatment of Inflammation of the substance of the Brain.—The treatment already so fully detailed under inflammation of the membranes, is equally applicable to inflammation of the substance of the brain; but with a view of impressing upon young practitioners the danger of delay, the following case and dissection are annexed. Their perusal will serve also to shew the insidious manner in which inflammation of the brain sometimes steals on, concealed by some prominent affection in a distant part of the body. No case can better exhibit the advantage of active treatment, even when applied late,—unfortunately too late, in the present instance, to save the life of the patient.

J. H. aged 30, tall, active, athletic, and of sober habits; for several months complained now and then of severe lumbago, for which blisters had been applied with relief. On the 13th July 1827, he applied for medical advice, in consequence of a return of the lumbago, which had been very severe for several days; he became gradually relieved by confinement to bed, the application of a blister, laxatives, and occasional doses of Dover's powder; on the 3d August, to all appearance, he was very much better, but his bowels were rather confined. During the whole of that day, however, he became, according to the account of the people about him, more and more stupid, without any apparent cause. When spoken to he replied, but always as if abstracted. Pulse natural; countenance heavy, and rather vacant.

4*th*, Makes no complaint; reposes in one posture, on his back; appears fatuous; and when spoken to, returns a vague inconsistent answer; articulates indistinctly; both hands are in constant motion; pulse natural and soft; had two stools. Head to be shaved, and cold applied; sixteen leeches to the forehead; a blister between the shoulders. In the evening no alteration; the leeches bled well. Pounded ice has been constantly applied to the head; pulse 80 and regular; tongue white and dry; skin moist. Passes urine and feces involuntarily.

5*th*, Had a bad night; is insensible; superior and inferior

extremities paralyzed; but the flexor muscles of the arms are rigid, the fore-arms bent, that of the right arm more than the left; jaws clenched, but the lower one can be depressed a little by using considerable force; countenance pallid and bedewed with perspiration; eyes fixed, pupils dilated and immoveable; pulse 86, regular, and of natural strength; has lost the power of deglutition. In the evening; no change of symptoms, except that the countenance has assumed a severe expression. There is a strong urinous odour, owing to the involuntary passage of urine in the bed. He appears, although insensible, and having lost the power of voluntary motion in all his extremities, to feel the impression of cold disagreeable when the bed-clothes are drawn down. V. S. ad ʒ 28. The bleeding was persevered in till the pulse rose from 86 to 100, and became somewhat weaker. During the latter part of the operation he appeared to awake as if out of a deep sleep, and looked about him; and soon after was able to reply to any question by a sign, although he could not speak.

6th, Some time after the bleeding last night, he made signs that he wished to lie upon the right side, and upon being turned, expressed satisfaction; has since taken his drink occasionally, and put out his tongue when desired; his countenance is certainly more cheerful, and the eyes are sensible to light, but in other respects does not seem much improved; passes stools and urine involuntarily; pulse 130; skin moist; tongue white, and rather dry. Thirty-six leeches to the head, and a large blister to each leg.

7th, Passed a more composed and comfortable night; countenance more animated; is able to articulate, but with difficulty, and when spoken to, returns an appropriate answer; pulse 150; pupils dilated; tongue white and furred; skin moist; stools and urine still passed involuntarily. The application of iced water ordered to be persevered in. During the course of the day, the symptoms continued to improve, and in the evening his looks were more lively; the countenance had a more natural expression; had two stools during the day, and made water, of which he gave warning, and desired to be raised upon the night chair. There is still a little rigidity of the flexor muscles of the fore-arms, as well as spas-

modic motion of the fingers; and both hands embrace the genital organs; pulse 140; skin moist. Had gruel and arrow-root frequently.

8*th*, Appears better to-day; has recovered in a considerable degree the use of his extremities; reposes frequently on his side; gives distinct answers, and is better able to articulate than yesterday; countenance mild; pupils less dilated; tongue moist and less loaded; pulse 150; skin natural; complains now, for the first time, of debility; and ordered to have food at short intervals. At the evening visit he appeared to be doing well, but still complained of being weak; the pulse 130, and of moderate strength; bowels moved twice during the day; countenance natural and more lively; tongue moist.

9*th*, He was found in a weak, depressed, and sinking state this morning; respiration and deglutition difficult; pulse 160. Wine was ordered *ad libitum;* but he continued to sink, and died a little before midnight.

Examination of the body 30 *hours after death.*—Slight emaciation; countenance composed; considerable rigidity of the flexor muscles of the right arm. On removing the *calvarium* and *dura mater*, the brain appeared full and distended; a little serosity between the membranes; ramiform injection of the vessels of the *pia mater*, forming a complete anastomosis over the surface of the hemispheres; the whole presented a deep scarlet colour. In the cortical substance of the brain, several red spots from numerous little bloody points closely aggregated. The brain in these places softer than natural, and tore readily on separating the membranes from it. Medullary substance also presents bleeding points when cut into.

On the base of the brain the membranes are in a similar state as on the hemispheres; several ecchymosed spots on the lateral parts of the middle lobes. After removing the membranes in a very careful manner from all the central parts at the base of the brain, from the part anterior to the point of decussation of the optic nerves to the commencement of the *medulla spinalis*, a number of bright red spots were observed in different places. On the left *tractus nervi optici* a considerable spot of a bright red colour, found to penetrate through its whole depth; also several smaller spots on the opposite

side. On each side of the *pons varolii*, there were similar red marks, but particularly one on the right side, of a dark-mulberry colour, about the size of the thumb nail; this was examined minutely, and was found to extend deeply into the medullary substance, and to be formed by an intimate mixture of blood, with the cortical and medullary band of the *pons*. There was a considerable spot of a similar description on the right side of the *medulla oblongata*. The membrane lining the ventricles was very vascular, and the *choroid plexus* loaded with blood. Nothing remarkable in the cerebellum. Spinal marrow not examined.

Thorax.—Strong and general adhesions on both sides between the *pleura pulmonalis* and *costalis;* particularly firm on the left side. Pericardium strongly attached to the diaphragm, and anteriorly so firmly united to the heart as to form only one body with it; the bond of union formed by a very dense, almost cartilaginous substance, varying in thickness—in some places more than $\frac{1}{3}$ of an inch, in others only a few lines; the pericardium could with great difficulty be separated from it. A part of the posterior surface of the heart was unattached to the pericardium.

Mucous membrane of the stomach generally, but more especially of its great curvature, of a dark-brown colour, with numerous varicose vessels running below it; in some places there were little patches with stelliform injection of the minute branches; other patches were of a uniform blackness. Intestinal canal natural. Bladder contained about half a pint of urine.

Hydrocephalus.

The frequency and fatality of this disease have strongly excited the attention of practitioners, with a view to discover its nature and seat. Two opinions at present divide the profession: according to one, hydrocephalus is a disease of inflammation; according to another, it is one of debility. My own opinion is, that it is most frequently a disease of inflammation; but that sometimes it may be occasioned by other causes, which shall be mentioned in the proper place.

There are several forms under which this disease appears. The division which I propose to adopt is as follows:

Acute Hydrocephalus.
Chronic Hydrocephalus.

Under the acute form, we meet in practice with numerous varieties; and I shall attempt to give a slight sketch of four of the principal.

1. Attended with severe and striking symptoms, such as fits of screaming; grinding the teeth; hot skin; quick pulse; bold expression of countenance; red face and eyes; convulsions; coma; the children dying on the third or fourth day. In such instances, I have seen the first stage terminated in twenty-four hours.

2. With symptoms very mild and insidious, so much so, that no alarm is taken for several days. The little patients complain, but this is attributed to peevishness, or to teething, till at length the parents become alarmed by the long continuance of the indisposition, together with the rapid emaciation which has taken place.

3. A third set of cases commences with gastric irritation, attended either by constipation or diarrhœa. The febrile symptoms are observed only at night. Medical men are often thrown off their guard, their attention being attracted by the more urgent symptoms connected with the state of the bowels. By and bye the child becomes quiet when allowed to rest in the horizontal posture; it grinds the teeth occasionally; and although shewing signs of some suffering, yet it never cries or becomes very fretful unless when raised. The moment the head is elevated, great impatience is manifested, and it gives vent to loud expressions of pain, which I suppose to be produced by headache or giddiness.

4. Very frequently hydrocephalus occurs during the course of other diseases, such as fevers, measles, small-pox, hooping-cough, and pulmonary affections; and not uncommonly runs through the first stage, and part of the second, before discovery is made of diseased action in the brain. Convulsions and coma take place at different periods in the course of the disease. The former is sometimes the first symptom, and occurs early in the disease, at other times not till towards the

fatal termination. In other cases, coma takes place before the convulsions, and is the first alarming symptom that occurs; in fact, the statements already made respecting inflammation of the membranes of the brain, and also of its substance, equally apply to this particular subject. The description given of the expression of countenance, the state of the pupils, the redness or paleness of the face, the state of the respiration, the mental faculties, the pulse, skin, and bowels, all apply with equal force to hydrocephalus.

Appearances on Dissection.—In the most rapid cases, the patients are carried off before organic lesion to any extent is produced. Although the membranes of the brain may display considerable arborescent vascularity, still the effusion is in very small quantity—too small to account for death. In cases of longer standing, the effusion into the ventricles will be in greater quantity: or thickening of the membranes may be found not only where they cover the hemispheres, but likewise at the base of the brain, involving all the important parts in the centre, from the point of decussation of the optic nerves to the commencement of the *medulla oblongata*. The thickening of the membranes is produced by the intermediate deposition of tenacious lymph. The membranes have been found extensively ulcerated, and considerable portions of the brain itself in a state of *ramollissement*, in children who have died with all the symptoms of hydrocephalus; and in these cases, there is not always any considerable effusion into the ventricles of the brain. I forbear at present to allude to other diseased appearances, such as tumours, tubercles, disease of the great sinuses, &c., because these more frequently produce chronic hydrocephalus.

Pathological remarks.—The chief point of inquiry relates to the cause of the effusion. Is it the product of inflammation? The best pathologists of the present day, consider it as proceeding for the most part from inflammatory action of the membranes of the brain; but at the same time there can be no doubt that a serous effusion is frequently the consequence of any cause obstructing, or even retarding, the circulation in the head. Thus it is believed to be occasioned by venous engorgement; and dissection affords

ample proof that it is often owing to obstructions in the great venous channels in the head.—Others allege that hydrocephalus is produced by debility. This is a pathological question of the utmost practical importance, because the remedies will be depletory in a certain stage of the disease according to the one view, and stimulating *in all the stages* according to the other. In order to place the subject in a clear point of view, I shall take the liberty of offering a few critical remarks upon a work by Professor Monro,* because it is the last published work which defends views that I conceive to be erroneous. At page 101, Dr Monro states, that before subscribing to the hypothesis, that the effusion in hydrocephalus is owing to some degree of inflammatory action, "it is necessary to inquire whether this disease usually occurs in persons who are disposed to inflammatory disorders at or near the meridian of life, when the human body is most liable to suffer from inflammatory diseases. With regard to the first of these points, it may be observed, that hydrocephalus is so rare after puberty, when the constitution is most liable to inflammatory disorders, that Cullen, and other writers of eminence, have described it as being peculiar only to infancy. That the disease is rather to be imputed to *debility*, follows from the well known fact, that hydrocephalus is frequently a disease which may be traced to bad nursing, improper food, dentition, the sequel of the most tedious and debilitating disorders, as hooping-cough and scarlatina."

Cullen's authority is a most unlucky one to quote in the present day for the true pathology of any disease, and more particularly of any disease of the brain. In the work of this author, there are only two pages and seven lines devoted to a detail of the symptoms, causes, pathology, and treatment of all the inflammatory affections of the brain and its membranes; and all that he has said respecting hydrocephalus is comprised in three lines, in the shape of an erroneous definition!

It is a fact, that children, particularly those under two or three years of age, are peculiarly liable to inflammation of the brain, from several causes:—1. From the wonderful changes

* Entitled, The Morbid Anatomy of the Brain, 1827.

which take place in the circulation early in life; 2. The large size of the head at that period in proportion to the rest of the body; 3. The change the brain undergoes in appearance and consistency; 4. The great activity of the circulation, and the high state of irritability of the nervous system at that period of life; 5. Difficult dentition, which perpetually excites a determination of blood towards the head. Besides these causes, accounting for the frequency of the disease, something must be said respecting its fatality in infants. Children cannot tell their feelings, nor direct the attention of practitioners to the seat of the disease. Their fretfulness and peevishness are too often attributed to bad temper, to the state of the bowels, or to the iritation of the gums from the advancement of teeth; and the disease in the brain, as has already been shewn, often advances in the most insidious manner, till convulsions or coma take place: and even the latter symptom, although observed in its progress, is too often overlooked until the patients become insensible. Bad nursing and improper food, upon which Dr Monro has laid so much stress in support of his own views, certainly tend to produce debility; but children badly nursed, insufficiently clothed, who are allowed to remain wet, and receive improper food into the stomach, are peculiarly liable to inflammation and ulceration of the bowels. They will be far more liable than healthy children to irregular determinations of blood, and, from want of vigour in the constitution, venous engorgement may take place, the vessels of the head may suffer, and effusion may in consequence follow; perhaps sub-acute inflammatory action may be lighted up in the brain. The experienced eye of a careful observer will be able, in general, to detect the disease in the brain, although it is not announced by symptoms so violent and imposing as Dr Monro seems to expect should be produced if actual inflammation had taken place. That venous congestion of the vessels of the head terminating in effusion, and that inflammation of the membranes of the brain, should sometimes take place in hooping-cough and scarlatina, which Dr Monro designates as debilitating disorders, will not surprise any who will study nature, or who will refer to the pathologi-

cal descriptions given of these diseases in their proper places in the 1st vol. of this work.

Dr Monro next asserts, that if hydrocephalus were an inflammatory disease, it ought, like inflammation of the lungs, and other inflammatory complaints, to be more prevalent in robust men, during the period of life when the human frame is most prone to other inflammations. Dr Monro might have known, that the periods of life at which inflammatory complaints most frequently occur, are infancy and childhood, and that for one inflammatory fever, or inflammation of the lungs, or of any other organ, in robust men during the prime of life, we meet with at least fifty in early life.

Dr Monro has committed a sad mistake respecting the opinions of two distinguished French pathologists. "If it be supposed, (says Dr M.) that hydrocephalus is always connected with inflammation of the brain; and that inflammation gives rise to the *softening* of that organ, which is the favourite opinion of Lallemand, Rostan, and others; in that case the brain should be found *invariably* in a softened state, which is not consonant to my observations." But I have already shewn that modern pathologists do not assert, that the effusion is *always* caused by inflammation; it is sometimes produced by venous congestion, and by any mechanical cause impeding the circulation. Neither Lallemand nor Rostan attribute the softened state of the brain to inflammation of the *membranes*, which Dr Monro appears to confound with inflammation of the substance of the brain, and who has also attributed to Rostan an opinion *quite contrary* to that which Rostan actually maintains. At page 104. of Rostan's work already quoted, he explicitly states, that although softening is occasionally produced by inflammation of the brain; yet, that it sometimes takes place unconnected with inflammation, and is a peculiar degeneration, which has its own signs and proper characters.

At page 103, Dr Monro further urges, that, "If inflammation of the brain had given rise to this species of hydrocephalus (acute,) the attack of the disease should be sudden and well marked, and its course rapid, like to that of phrenitis; whereas the origin of the disease is generally not well marked; indeed, so much so, as often to escape the notice of the

parent, and even that of the experienced physician." And he further states, that "It is admitted, even by those who impute hydrocephalus to an inflammation of the brain, that the symptoms of phrenitis are well marked, whereas those of hydrocephalus are often very obscure." It has already been shewn how very insidious inflammatory affections of the brain are, even in adults; they cannot be more so in young subjects; but the reader shall see what Cullen himself says on phrenitis in his "Outlines," at page 103. "Many of the symptoms by which this disease (phrenitis) is most commonly judged to be present, have appeared, when from certain considerations it was presumed, and even from dissection it appeared, that there had been no internal inflammation; and, on the other hand, dissections have shewn, that the brain had been inflamed, when few of the peculiar symptoms of phrenzy had before appeared." And Dr Monro concludes, that if acute hydrocephalus be owing to an inflammatory state of the brain, "there ought to be no distinction as to the symptoms, origin, progress, and consequences of phrenitis and hydrocephalus." To make the statement still stronger, he quotes Cullen's erroneous definition of phrenitis, and then states with great self-complacency, that "The symptoms of this species of hydrocephalus do not correspond with the above definition."

"One of the most striking features of inflammation of the brain, (says Dr Monro, at page 104,) is the state of the pulse; but that character is also wanting in hydrocephalus; for the state of the pulse is *widely* different from that of a person afflicted by apoplexy or inflammation of the brain. It is not full as in the former, or *hard* as in the latter. It is no doubt quick, as in other diseases which are the effect of debility. Besides, no author, who has described the symptoms of phrenitis, has stated that the pulse becomes slower some time after the commencement of the disorder."—It is almost unnecessary to comment upon the erroneous statements made in these passages; but this opportunity may be taken to mention, that Morgagni has clearly shewn the great varieties of the pulse in acute diseases; and there are few practitioners of the present day, who are not well acquainted with the varieties of the pulse in cases of affections of the brain. Dr Abercrombie,

in giving a general view of the symptoms which indicate inflammatory affections within the head in adults, makes the following observation at page 12. "The pulse is about the natural standard or below it, frequently about 60." And again; "The pulse having continued from 70 to 80 through the whole course of the disease." After alluding, at page 14, to the circumstance of the pulse becoming slower some time after the commencement of the disease, he observes: "As the pulse falls, the patient is disposed to sleep, this is perhaps considered as favourable; it falls to the natural standard, he then sleeps almost constantly; and in another day this sleep terminates in coma. The pulse then begins to rise again; it rises to extreme frequency, and in a few days more the patient dies."

Is it not a curious circumstance, that Cullen, in the seventy lines that he has written on inflammatory affections of the brain, does not notice the state of the pulse; neither does he mention it in his definition?

At page 110, Dr Monro endeavours to establish an invariable connection between hydrocephalus and dropsy, *both depending on debility;* now, if this were true, children ought to be very liable to dropsical affections in other parts of the body, which is decidedly not the case; but, nevertheless, looking pathologically at these affections, there is a strong analogy. Dropsy sometimes arises from inflammation; so does hydrocephalus. Dropsy sometimes arises from morbid alterations in the structure of the heart; so does hydrocephalus. Dropsy is sometimes produced by disease of the lungs, and particularly bronchitis; so is hydrocephalus. Dropsy in the belly frequently depends on diseases of the liver impeding the circulation; so does hydrocephalus occasionally depend on obstructions in the venous system of the head. Dropsy sometimes depends on diseases of the kidneys; so does hydrocephalus. Lastly, Dropsy is sometimes cured by bleeding; so is hydrocephalus!

Treatment of Acute Hydrocephalus.—If so much discrimination is required in the treatment of inflammation of the brain in adults, still more is necessary in treating the disease in young subjects. With respect to bleeding, in particular, much

depends upon the duration of the disease, the age and peculiarities of constitution of the child; and whether the disease has taken place subsequent to other disorders, in the course of which the child has been much weakened. But if called early, no lesion having as yet taken place in the brain, and the child being above two years of age, I have no hesitation in opening a vein, if one is any where to be found. This recommendation is urged after considerable experience of its advantages, in controuling diseased action in the brain at an early period of the disease, and from which I have never seen any bad results. It would appear that the danger of bleeding children from a vein is far overrated. In two cases, the bleeding produced syncope, and yet no bad consequences followed. Capuron says, at page 495,* "It is sufficiently proved, that general and local bleeding are the means of fulfilling the first of these two indications, above all in the beginning, where every thing announces a movement of re-action towards the head; apply leeches round the neck, open the jugular vein, or the temporary artery, and be not, like Dr Odier, afraid of breaking down the vital powers; these are too energetic, particularly during the first period when they tend to concentrate themselves towards the head, to irritate the brain, to produce a turgescence of its vessels, to leave traces of inflammation, and to produce effusion." It is impossible to give any particular direction as to the quantity of blood which ought to be abstracted. The operation is to be performed when there is high excitement only, and in the earliest stage of the disease. In other circumstances, leeches must be applied to the feet, which may be afterwards placed in warm water, to encourage the flow of blood; and when it is wished to prevent further loss, pressure can be conveniently and effectually used. A great error is committed by practitioners allowing the effect of the first bleeding to be entirely lost, and not following it up, either by taking an additional small quantity after a short interval of two or three hours, or applying leeches. Another error is frequently committed by allowing leech-bites to drain blood from the system by slow degrees, thereby producing

* Traité des Maladies des Enfans jusqu'à la Puberté, 1820.

great weakness without affecting any diminution of the diseased action. Antimony is sometimes of signal benefit in these cases. Cold applications to the head, purgatives, and all the other remedies mentioned so fully when treating of inflammation of the membranes of the brain, must be employed according to circumstances. The gums should be always carefully examined, and lanced if necessary. Mercury has been highly extolled in the treatment of this disease; but principally by those who regard it as a disease of debility, terminating in dropsy, and not one of inflammation. There are only two classes of cases in which this remedy ought to be trusted to; —1. Those in which we are called too late to employ the most powerful antiphlogistic means; and, 2. Those in which these means have been employed, without decided amendment.

In sub-acute cases, as well as in those of an acute nature, after the force of the disease has been subdued by the appropriate remedies, I have seen very beneficial results from the production of a pustular eruption on the head, with the tartrate of antimony ointment. This is only following the steps of nature, it having been often observed that threatening symptoms have subsided upon the occurrence of porrigo, or some other cutaneous eruption. When the disease has advanced to its last stage, it has been proposed to draw off the water by tapping the brain. But the water is not the disease; and, therefore, unless the diseased action were cured, and the healthy condition of the brain restored, it is of no use to draw off the water; not to speak of the danger and uncertainty of such an operation, even when performed by the most skilful hands. Whatever good effects are represented to have been produced in chronic cases of hydrocephalus, no benefit can be expected from such an operation in the acute form of the disease.

Chronic Hydrocephalus.

Sometimes in young subjects, acute hydrocephalus runs into the chronic form, and constitutes one variety.

A second variety, the effect of very slight inflammatory action, may be very insidious, and slow in its progress. A child so affected shews marks of suffering, with loss of flesh;

but there are no decided symptoms, till perhaps a stranger remarks its head to be much larger than it ought to be. The head may go on enlarging slowly for a number of years, remarkable instances of which are on record; or if the disease attack a very young subject, the bones of the head separate to a considerable extent.

A third variety is sometimes observed, in which the head, perhaps very large originally, does not become larger during the course of the disease; but the bones are found to be remarkably thin, and sometimes after they have become so, the sutures are so much weakened, and their mechanism so much altered, that slight separation of the bones is observed.

Children affected in the manner described in the first variety, seldom live so long as the others, and in the third variety, shorter than those in the second, who may live for twenty or thirty years; and it is an interesting pathological fact, that in all the varieties death is often occasioned by some other disease, very frequently ulceration of the bowels, sometimes phthisis pulmonalis, and occasionally an inflammatory affection of some of the tissues of the lungs.

The symptoms vary much; and in some cases, it is difficult to conceive how children under such extensive disease preserve their intellectual faculties. Occasionally the sense of sight, hearing, and taste, are destroyed permanently, or only for a time; in some, one sense only is affected; in others, two or more, the rest remaining entire. Emaciation is a common symptom, as is also some degree of giddiness in the erect posture. The bowels are in different conditions; but when diarrhœa is intractable, and in some cases even when very slight, I have found after death extensive ulceration in the mucous membrane of the bowels. Strabismus is frequently, and opacities of the cornea are occasionally, seen in this affection. In some instances, convulsions are very violent, many of the muscles remaining constantly rigid; the convulsions may be general, like those of the epileptic kind, with foaming at the mouth; or they may be partial, affecting one or more of the extremities, or the muscles connected with respiration, or perhaps only those of the face.

Appearances on Dissection in Chronic Hydrocephalus.—The

membranes of the brain are generally very vascular; the veins sometimes very large and turgid. In three instances of chronic hydrocephalus, I found extensive traces of disease in the longitudinal sinus; in one, it was almost obliterated by the thickening of its coats; in two others, the area of the vessel was very much diminished, partly by thickening of its coats, but principally by deposition of lymph in its cavity partially organized, and requiring some degree of force to separate it.

The collection of water in the ventricles sometimes amounts to several pounds; and in cases where the effusion is considerable, the convolutions of the brain become more and more obliterated, from the distention occasioned by the fluid, and in some instances I have seen them completely unfolded. The ventricles will be found largely developed, the lining membrane occasionally vascular, and frequently thickened; I have seen this membrane as thick as the rind of an orange, and easily separated from the surrounding brain, which was softened. The brain itself is occasionally of a natural consistence; at other times it is softened. In some cases, particularly where the convulsions have been violent, considerable effusions, presenting more or less of the appearance of lymph, have been found, involving the central parts at the base of the brain.

In some instances, the effusion has been seen external to the brain itself, which has been described as a variety, under the term "External Hydrocephalus." Not meaning to deny the existence of such a case, I feel convinced, from my own examinations of brains, where the effusion appeared to be external, that in fact it was owing to the fluid having found its way out of the ventricles, and distending to a great degree the arachnoid coat alone; one instance of which occurred to me a few years ago, and another lately.

Treatment of Chronic Hydrocephalus.—In the treatment of cases of this nature, the chief object of the physician is to palliate symptoms as they arise, by the occasional application of leeches, the frequent use of blisters or issues, and the contra-irritation produced by tartar emetic sprinkled upon the surface of a pitch plaster; attention to the bowels, regulating the diet, together with the administration of an occasional small opiate.

Mercury has been much praised in this form of the disease, and although I have never seen any benefit arise from its employment, yet there can be no objections, in any case, to a fair trial of its powers.

When considering the treatment of acute hydrocephalus, I stated my disapproval of the irrational practice of puncturing the brain to draw off the effused fluid; but I will not venture to speak so decidedly against the practice in chronic cases. If the operation of tapping the brain is ever to prove successful in producing a cure, it must be in chronic cases, where an inconsiderable quantity of fluid is effused, or where there is no considerable organic lesion. Nevertheless, experienced pathologists will, I am persuaded, join me in stating that such cases are exceedingly rare, so rare as not to be met with oftener than once in a thousand instances!

Pressure has been highly extolled; of course it must be employed after the operation of tapping. Similar remarks to those already made respecting the results to be expected from that operation, are applicable to the effects to be expected from pressure.

CHAP. III.

DISEASES OF THE SPINAL MARROW.

Inflammation of the Spinal Marrow and its Membranes; and under this head I shall at present include Tetanus—Trismus—Trismus Nascentium—and Hydrophobia.

INFLAMMATION OF THE SPINAL MARROW AND ITS MEMBRANES.

It has been considered expedient to treat of inflammation of these tissues together, because it does not appear to be established, that inflammation in one texture has such distinctive characters as to enable us to distinguish inflammation of the membranes, from inflammation of the substance of the spinal marrow. We are indebted for many important observations on this subject, to several French writers, and Dr Abercrombie; nevertheless, systematic authors must be slow in drawing practical conclusions from them, until they be more numerous, and more fully elucidated.

Symptoms of Inflammation of the Spinal Marrow and its Membranes.—The chief symptoms of inflammation of these parts are stated to be pain in the back, occasionally shooting upwards and downwards, being very severe in one spot, increased by motion, but not always by pressure, unless it be connected with caries of the bone; rigors; some degree of fever; headache; slight incoherency, and even coma, occur. In some cases dysuria takes place; in others, retention of urine; convulsions, sometimes general, at other times partial; rigidity of the muscles of the back and neck. Sometimes the body is bent backwards, in the state called *opisthotonos;* in

some extremely rare cases, the body is bent forwards, in the state termed *emprosthotonos*. Sometimes there is locked-jaw, and occasionally complete tetanus. Sometimes there is great pain or tingling in the extremities, particularly in the lower; and occasionally paralysis, not only of the lower, but of the upper extremities. When the superior extremities are affected with pain, tingling, convulsions, or paralysis, it is stated that morbid appearances have been found in the cervical region. In some instances, the limbs are permanently contracted, rigid, and painful; while in other cases they are flaccid, and without pain. The muscles of deglutition are also occasionally affected, sometimes so much so, that there is a dread of swallowing any fluid, and in this way the disease simulates hydrophobia; and there is reason to believe this class of diseases has been often mistaken for the latter. The functions of the stomach and bowels are deranged; at first, the bowels are constipated, and moved with difficulty, but towards the last, stools are passed involuntarily, as is the urine. The tongue presents different appearances; from being loaded and moist, it becomes dry and hard. The pulse is various, and has no particular character. The faculties of the mind, generally speaking, are not much impaired, although there is occasional incoherency. Some allege, that it is only when the disease is situated high in the cervical region, that the functions of the brain are impaired. When they are permanently disordered, and particularly if blindness and deafness take place, it may be concluded that the brain is also affected. The respiration, in many cases, becomes slow as the disease advances, so much so, that there may be so few as ten, seven, five, or even three inspirations in a minute; occasionally death is suddenly produced by asphyxia.

Sometimes the disease terminates fatally in a few days, but the general course of its acute form is from ten to fifteen; it would appear, however, that it may exist in a chronic state for an almost indefinite period. In the practice of French physicians, we are told, this disease has been very generally fatal; but I have seen a number of severe cases treated successfully, which, there was every reason to believe, were inflammations of the spinal cord and its membranes, but by means

very much bolder than those which are generally pursued on the opposite side of the Channel. If the disease be produced by caries of the vertebræ, or by blows causing considerable injury to the bones, it will generally prove fatal, at least much more frequently so than when it occurs spontaneously. Probably many affections which now go by the vague name of nervous, and many of the painful sensations in the chest and abdomen, experienced particularly by females, will hereafter be found to depend upon some functional derangement, or slight disorganization of the spinal marrow and its membranes.

Causes of Inflammation of the Spinal Marrow and its Membranes.—This disease may be produced by the application of cold, particularly in damp situations; fatigue, and every other circumstance which may upset the balance of the circulation, and produce venous engorgement in different organs; as also by blows; caries of the vertebræ, and tumours growing from different parts within the vertebral canal.

Appearances on Dissection in Inflammation of the Spinal Marrow and its Membranes.—It may be remarked, that the description given of the morbid appearances of the brain and its membranes, will equally apply to the spinal marrow and its membranes. The effusion will be found beneath the arachnoid. The reader must keep in mind, that there is always a considerable quantity of serous fluid in the spinal canal, which has a free communication with the ventricles of the brain; and that the spinal marrow is rather harder than the substance of the brain.

Treatment of Inflammation of the Spinal Marrow and its Membranes.—This consists in bleeding, generally and locally; the frequent administration of purgatives; the application of contra-irritation; and attention to the bladder, to prevent over-distention. In this, as in all diseases affecting vital organs, the life of the patient depends upon the timely application of the proper remedies, which must be made assiduously. Some cases, thought to be of the nature of those now under description, have been successfully treated, by applying twenty or thirty leeches, after copious general bleeding, and by re-applying them, (even in increased number,) to the part

chiefly affected, till the disease was subdued; and by the exhibition of repeated doses of calomel and opium.*

Tetanus.

This is a disease characterized by tonic convulsions, and, for the most part, by rigidity of the affected muscles. Sometimes the muscles which close the jaws are solely affected, with perhaps those of the neck, when the disease is usually termed *locked-jaw* or *trismus*. When the muscles of the back are convulsed and contracted in such a manner as to make the body be supported by the head and the heels, the trunk being arched, the term *opisthotonos* has been applied. When the body is bent in the opposite direction, the term *emprosthotonos* has been used. In a practical point of view, these varieties may be considered under the general term, Tetanus.

An important distinction, however, must be made between the symptomatic tetanus, which is so frequently the result of wounds, and that which comes on without any assignable cause, and which has been denominated, in contradistinction to the other, idiopathic. It affords me much pleasure to hand to the surgeon who boasts of the superior success of his art over that of physic, the traumatic tetanus, in the hope that he may be more successful in discovering its true pathology and treatment, than his wise ancestors; and I shall now proceed to consider that form of the disease which has been called idiopathic, and afterwards make a few observations on *trismus nascentium*.

Symptoms of Tetanus.—Tetanus has no precursory symptoms which can be depended upon; sometimes patients complain of rigors, or merely chilliness, with pain and stiffness of the muscles of the neck and shoulders, which extend by degrees to those of the jaw. By and by rigidity of the muscles takes place, accompanied by painful spasms; the jaws are immoveable, and if not yet completely shut, soon become so tightly clenched that it is impossible to separate them; deglutition is difficult, at length impracticable; the faculty of the

* The last work written exclusively upon this subject, is that of M. Olivier of Angers, entitled, "De la Moelle épiniére et de ses Maladies."

speech is impaired, and at last the power is altogether destroyed, although intelligence may remain; the countenance is exceedingly anxious; the oppression at the præcordia is great, together with a sense of tightness and suffocation.

The spasms sometimes extend from the face and neck to the back, from whence they spread to the rest of the muscles of the trunk, abdomen, and extremities, the muscles always remaining rigid; but their convulsive action comes on at regular intervals. In the most severe cases, the paroxysms are violent, and the spasms succeed each other very rapidly. The oppression at the præcordia increases as the spasms extend from the muscles of the jaw and neck to those of the trunk, when there come on a severe sense of constriction in the chest, and a violent darting pain extending from the lower part of the sternum to the spine, the return of which the patient constantly dreads. The mental faculties, for the most part, remain sound till the near approach of death; which circumstance gives the disease a distinguishing character from epilepsy. The pulse is generally little affected in tetanus, even in the traumatic form of the disease; occasionally, however, it is quick, particularly towards the fatal termination. The functions of the lungs seem to be seriously impeded; respiration being very rapid, or slow, not exceeding three, five, seven, or nine inspirations during a minute. The skin is seldom hotter than natural, that is to say, there is no feverish heat; the body is frequently bathed in perspiration, which, as the disease advances, is converted into a cold, clammy sweat. The functions of the stomach and bowels are sometimes unaffected. Deglutition is in many cases very difficult, which may be partly owing to the tough phlegm lodged about the fauces in considerable quantity, and partly, also, to the spasmodic action of the muscles. Greater difficulty is experienced in swallowing fluids than solids, which the patient is apprehensive will produce complete suffocation; and, if he is a person of irritable temper, he may perhaps shew a marked dislike to fluids when presented to him, which will give an appearance of *water-dread*. Should such an individual have received a bite from a dog, even twenty years before, he will be said to be affected with hydrophobia; and I am convinced,

after much patient investigation, that many of the cases recorded as pure hydrophobia, were nothing more than trismus, conjoined with difficulty in swallowing fluids. Tetanus is a disease which is very rapid and fatal in warm climates, terminating as early as the third day; in this country, it is seldom fatal till between the fifth and tenth. The danger of the disease is to be calculated by the frequency, violence, and duration of the convulsions.

Causes of Tetanus.—In warm countries, it is believed that the black population is more liable to tetanus than the white. Individuals possessing what is termed a nervous temperament, are perhaps more subject than others. Long continued fatigue, together with exposure to cold damp air, conjoined with the excessive use of ardent spirits, are the causes usually, and perhaps truly assigned.

Appearances on dissection in Tetanus.—Many distinguished pathologists believe that tetanus has its seat in the spinal marrow, and that its nature is inflammatory. There can be no doubt that there is a striking resemblance between the symptoms of tetanus, and those produced by inflammation of the membranes of the spinal marrow. Tetanus, well marked in its symptoms, however, has proceeded to a fatal termination, and upon the most minute examination no morbid appearance could be discovered, either in the membranes or in the spinal cord itself. And on the other hand, inflammation and other organic lesions of this part have been found upon dissection, in cases where no symptoms of tetanus had manifested themselves. Others allege that the ossific scales found on the surface of the arachnoid membrane of the spinal marrow, are the cause of tetanic convulsions; but I have frequently seen these ossifications where symptoms of tetanus never appeared.—The lungs have been often found loaded with blood; but this can scarcely have any connection with the causes of the disease; it is perhaps only an effect of the impeded respiration. It is said that the cardiac portion of the stomach and the lower end of the œsophagus have always been found inflamed, and attempts have been made to connect the occurrence of the disease with this appearance; but were this a cause of tetanus, it would be a disease of very frequent oc-

currence in these latitudes. A similar remark applies equally to worms having been occasionally found in the alimentary canal, but they may possibly give rise in some constitutions to symptomatic tetanus.

Treatment of Tetanus.—After a careful review of the cases recorded in the annals of physic, no plan of treatment hitherto employed seems to have been attended with much benefit. Bleeding, purging, cold and warm bathing, all the most powerful narcotics, and mercury, have each had its warm supporters; but with little success. The following is the plan which I would adopt in cases of tetanus, including those of locked-jaw, in previously healthy subjects. If called early, the strength being good, and the pulse not very rapid, I would bleed from the arm, till the near approach of syncope; by this means, plethora will be reduced—any determination of blood will be altered—and any tendency to inflammation, if such exist, so far at least subdued. But V. S. ought not to be employed if the disease had made much progress, or if the pulse were very rapid, the tongue dry, and the strength reduced by the diseased action. In an hour or two after the general bleeding, blood should be abstracted locally in the course of the spine, either by applying a considerable number of leeches, or by means of cupping-glasses, which ought to be repeated from time to time according to circumstances. The bowels must be kept freely open; but much mischief has been done, and the spasms rendered more violent, by the constant exhibition of drastic purgatives. Tobacco enemata have long been used,* and have of late years been again strongly recommended in this disease by Dr O'Beirne of Dublin. Opium, in 5-grain doses, ought to be exhibited every 2d, 3d, or 4th hour, according to circumstances; or what is better still, a hundred drops of laudanum, sixty or seventy of Battley's sedative solution, or half-grain doses of acetate of morphia. From the beneficial effects produced by colchicum in gout and rheumatism, in both of which the nervous system is very much implicated, large doses of that medicine might be conjoined with the opium. Patients labouring under tetanus

* Vide Observations by Mr Duncan, 11th vol. Ed. Med. and Surg. Jour. p. 198.

appear to bear immense doses of opium; many cases are recorded, in which twenty and thirty grains have been exhibited daily, and persevered in for two or three weeks without causing any apparent bad consequences. Mercury has been much in favour among medical men in the treatment of this disease, and it has been asserted that those patients have recovered in whom salivation had been excited; but there is a great deception likely to arise from this statement. It is difficult to excite this action in violent diseases, which run on rapidly to the destruction of life; the very severe cases run through their course in too short a period of time to allow the mercury to act, therefore it can only be in the slighter varieties of the disease in which the action of the remedy can take place, and which might be cured by other means. The remedy, however, has been too strongly recommended to be passed over. A large blister should be applied to the spine. As to cold and warm bathing, it may be shortly stated, that I have no faith in either, as the least motion will very generally produce a paroxysm. The strength must be carefully watched, and nourishment, with or without a little wine, should be given at short intervals, long before there is any decided appearance of sinking. When the stage of collapse approaches, stimulants must be had recourse to, and there can be no doubt that their judicious exhibition has occasionally saved lives. Among other remedies which have been recommended, I may mention asafœtida, musk, camphor, valerian, bark, sudorifics, ammonia, carbonate of soda, &c.

Trismus Nascentium.

I have now to say a few words respecting the locked-jaw of infants. It is a disease seldom seen in this country, and is more peculiarly an affection of negro children in warm climates; attacking them between the 7th and 15th day after birth, seldom later than the 17th, and, in general, neither preceded nor accompanied by any febrile movement. The disease steals on in the following manner. Children lose flesh and strength, and are affected with drowsiness and frequent yawning; they suck with increasing difficulty, and at last are unable either to suck the breast or to swallow; the skin gradually puts on a yellow appearance; by and by the jaw is observed to become

stiff, its muscles rigid; general convulsions sometimes precede death, which often happens in two or three days from the first attack.

The true pathology of this affection has evaded the efforts of all inquirers. It has been attributed to irritation, produced by tying the navel-cord, to the irritable state of the umbilicus upon the separation of the cord at the natural period; while others maintain, that it is owing to some diseased state, or retention, of the meconium.

No treatment hitherto tried appears to have had much effect in controuling the disease after it is fairly established; but that which has been found most beneficial, is the application of turpentine to the navel.

If the child survive the ninth day without the occurrence of any symptoms of the disease, it is considered safe. At one time, in some of the West Indian Islands, this disease was so common and so fatal, that on an average, two out of three infants perished.

Hydrophobia.

This is a disease happily of rare occurrence, particularly in this country; and, as already mentioned, it is probably of still rarer occurrence than is generally imagined, being frequently confounded with tetanus, when, along with that disease, there is a dread of liquids; but there can be no doubt that such an affection does exist. I once saw a patient many years ago, but before I was able to judge of such matters for myself, who was said to be affected with hydrophobia; it terminated fatally; but I have never met with a medical man who could say he had seen even one case in this country. Hydrophobia is produced by a morbid poison generated in the dog, wolf, fox, and occasionally, although rarely, in the cat. The poison appears to be mixed with the saliva; and the characteristic of the disease produced, is a dread of liquids. That such a disease does exist, and that it is capable of being communicated from one animal to another, has been satisfactorily proved by experiments performed in the year 1813, by Magendie and Breschet. The saliva of a man affected with hydrophobia, was collected and inserted beneath the skin of

two dogs, which were at the time in excellent health, and in thirty-eight days one of the two dogs became rabid, and bit two others, one of which died in a month after of the same disease. Experience has proved, that all the animals bitten are not necessarily affected with hydrophobia. Of this fact, Mr Hunter gives a striking example. Twenty persons were bitten by one rabid animal, of whom only one suffered. It is generally admitted, that the state of the mind has a powerful influence in the production of disease; and it is probable that hydrophobia may be sometimes produced by the constant agitation into which timid nervous persons are thrown after having been bit. Some allege, that the virus may remain dormant in the system for years before the disease appears; but the general opinion is, that it shews itself in between twenty and sixty days from the occurrence of the accident. During this period, there is no constitutional derangement, unless the individual is depressed by fear.

Symptoms of Hydrophobia.—The disease is ushered in by rigors, languor, lassitude, severe mental depression, irritability, anxiety, restlessness, and watchfulness. Occasionally a shooting pain is felt in the neighbourhood of the injured part. As the disease advances, the anxiety of the countenance, the irritability and watchfulness, the oppression at the præcordia, and sense of contraction of the chest, increase; slight tremors affecting every part of the body appear, and difficult deglutition; a considerable quantity of viscid phlegm is observed in the mouth and fauces; stiffness of the jaws now and then takes place; as also general spasmodic paroxysms, resembling those in tetanus, but it is asserted, that on careful examination, the convulsions will be found to be of the clonic kind. In pure hydrophobia, the body is said to be affected more with tremors than convulsions. At length the water-dread increases so much, that the sight of any thing liquid, or merely an allusion to it, produces a paroxysm of tremors, at a time too when the thirst is very urgent. On some occasions, the dread only takes place when the patient attempts to drink. As the disease goes on advancing, the least noise or motion made by any of the attendants produces a paroxysm, as well as every effort on the part of the patient either to move or speak. He

manifests increasing terror and watchfulness. As in tetanus, the mind generally remains entire till towards the termination of the disease. The thirst and sense of constriction increase in urgency; respiration becomes painfully hurried and short; the pulse and heat of skin are generally about the natural standard; but the former increases in frequency, while the latter sinks towards the fatal termination, and the surface is covered with a clammy sweat. Debility, in the proper sense of the term, is scarcely ever present till towards the last stage, when the eye becomes hollow, and the countenance pale and haggard.

The duration of the disease in slight cases is about a week, but in those of a more violent nature, two or three days. Mr Marshall informs me, that the last case of this disease which came under his notice, died in twenty-two hours from the occurrence of the first suspected symptom. Two hours before death, his patient eat bread and jelly with an appetite. Another case, which Mr Marshall attended, terminated fatally in a shorter period.

Appearance on dissection in Hydrophobia.—A great many discordant statements will be found in different works, respecting the seat of the disease. Some pathologists, after the most careful examination, have not been able to discover any morbid appearance whatever, in any part of the body; while others have seen vascularity in the pharynx, œsophagus, the cardiac extremity of the stomach, and even in portions of the intestinal tube, particularly the ileum; and these parts have been represented to have been even in a gangrenous condition. Magendie found no diseased appearances in the brain. Professor Trolliet of Lyons, published a work on this subject in the year 1820.* He seems to have had ample experience in the treatment of this dreadful malady; and the following are the diseased appearances which he discovered on dissection in different cases. Vascularity and inflammation of the mucous membrane of the air passages, which was coated over with a frothy matter, (according to his view,) of a *peculiar* kind, and which he supposes to contain the specific virus; the lungs

* Nouveau Traité de la Rage.

were gorged, and apparently emphysematous; in some instances air was discovered in the heart, and large blood-vessels; the blood was black, uncoagulated, and had an oily appearance. This gentleman found the membranes of the brain, and more especially the *pia mater*, very vascular.

One fact has been established by all the individuals who have investigated this disease,—that the salivary glands, and the surrounding cellular substance, have always been found healthy.

Treatment of Hydrophobia.—Bleeding even to syncope, and large doses of opium, have been employed, together with camphor, musk, mercury, and almost every other potent remedy in the materia medica, without success. To shew the extent to which bleeding has been carried, I may mention a case treated by Professor Trolliet. The patient was bled to the extent of five pounds, when the water-dread first appeared. In a few hours afterwards, the operation was repeated to the extent of eighteen ounces, when syncope again took place. In four hours subsequently to the last bleeding, fourteen ounces were abstracted; and in four hours after that, the patient died; being twelve hours from the commencement of the hydrophobia. It was remarked, that the symptoms became more aggravated after each bleeding. Notwithstanding the result of this and other cases, I would still be disposed to recommend a similar plan of treatment to that I have proposed in Tetanus at page 148.

The injection of tepid water into the veins has been practised without success. But from the experience we have had of the safety of throwing even ten pounds of saline fluid at a time into the vascular system in cases of Epidemic Cholera, there is little doubt that the practice in Hydrophobia will be conducted with greater boldness, and probably attended with better effects.

CHAP. IV.

EPILEPSY—HYSTERIA—CHOREA—NEURALGIC PAINS.

Epilepsy.

This is a convulsive disease which affects the voluntary muscles, and is characterized by the suddenness of the attack, loss of sense and voluntary motion.

Symptoms of Epilepsy.—The fit generally comes on suddenly, sometimes with a frightful shriek, and the patient falls down, and immediately loses sense and voluntary motion; convulsions follow on the instant; the muscles on one side of the body are generally more violently affected than those on the other; all the muscles connected with respiration, and those of the face, are always involved. The pupils are sometimes dilated; the eyes roll about in a most frightful manner, and at last become fixed. The face is frequently of a dark purple colour, but occasionally it is pale and haggard. The tongue is sometimes thrust with violence out of the mouth; it is occasionally caught between the teeth, and severely bitten; a considerable quantity of phlegm is collected in the mouth, and expelled with violence in a frothy state, with considerable noise. The respiration is always hurried and laborious, which is often produced or increased, by patients breathing through the clenched teeth, and the frothy saliva. The pulse varies much; in some cases it is very rapid, in others preternaturally slow. The affected muscles are not constantly rigid, but occasionally become relaxed, and then rigid again; this is the state termed by nosologists "clonic spasms." The dura-

tion of the attack varies from a few minutes to half an hour; the convulsions cease; the face becomes pale; and the patient may recover his senses, and power of voluntary motion, either immediately, or very slowly; his judgment is, in general, for a time impaired, and he is left debilitated, with the feeling of weight in the head, or actual headache. The paroxysm sometimes terminates by violent vomiting. Occasionally it happens that one fit succeeds another, till the patient becomes comatose, and dies; but, comparatively, few die during a fit, unless the disease has existed for a considerable period of time.

An epileptic paroxysm is occasionally preceded by a peculiar and painful sensation in a distant part of the body, as in the fingers, toes, or some part of the abdomen, and is described as proceeding in a gradual manner, like something creeping towards the heart, in other cases towards the head, when the convulsions commence. This is called the *aura epileptica*. The attack is also occasionally preceded by certain symptoms which announce its approach to the patient, but which he has usually no time to communicate; these are, headache, imperfect or erroneous vision, sparks of fire before the eyes, and *tinnitus aurium*.

Females appear to me to be more liable to this disease than males. It is not entirely confined to man, as I have seen it in horses,—in dogs, particularly of the Newfoundland breed, —in poultry and pigeons.

Causes of Epilepsy.—Epilepsy appears to be occasionally hereditary. I have known it to be the cause of death in both father and son; but it is more frequently an acquired disease. Idiots are often also epileptics; and insanity frequently terminates in epilepsy. Fright is said to be a cause; and every kind of mental agitation. Thus, it was formerly called the electioneering disease in England, because it so often occurred at such periods from violent mental excitement, aided however by another cause, the abuse of intoxicating liquors. Indigestible articles of food, and constipation, by occasioning irritation in the stomach and bowels; the irritation produced by worms in the intestinal tube, are also very frequent causes; as is likewise excessive venereal indulgence. This complaint has

been attributed to tumours in the brain, and projections of bone arising from the inner table of the skull.

Appearances on Dissection in Epilepsy.—A great variety of organic lesions have been discovered in the brain and spinal marrow of epileptics. Congestion of the vessels of the brain; thickenings and indurations of the membranes; inflammations; exostoses; tubercles and tumours of different kinds, and in different parts of the brain—sometimes situated externally to the membranes; at others, occupying the very centre of the cerebral mass. Some assert, that these disorganizations are exclusively confined to the cerebellum; others to the spinal marrow; but these are to be regarded only as assertions made by individuals, whose observations have been made upon a limited scale. It must be observed, that any one of these morbid appearances may exist, and even several of them combined, without producing that combination of symptoms which constitutes the disease under consideration; and further, that in some instances, upon the most careful examination, no morbid appearance whatever has been discovered, either in the brain or spinal marrow. Worms have frequently been found in the intestines; and this has led several pathologists to assert, that their presence is the sole cause of epilepsy; but in a great number of instances, not a vestige of these animals could be discovered, or any lesion in any part of the body. So that, notwithstanding all the attention which has been paid to the investigation of the nature and seat of this disease, we are left very much in the dark.

Epilepsy appears to be a functional disease of the brain and nervous system, produced by a variety of causes, sometimes by mental emotions; at others, by various irritations affecting the digestive organs; and very frequently by some of the above mentioned organic lesions of the brain and spinal marrow.

Treatment of Epilepsy.—Experience has convinced me, that much can be done for epileptics in preventing attacks; but almost every thing must be done by the patient himself in the intervals. I have seen little benefit from any mode of treatment during the paroxysm, except by placing the sufferer in the horizontal posture, and taking such precautions as will prevent him from being injured by the violence of the mus-

cular commotion into which the body is thrown. One of the first circumstances to be attended to, is to put something between the teeth to prevent injury to the tongue, and the garments must be loosened, particularly stays and neck-cloths; and it is often very serviceable to sprinkle the face with cold water, particularly when the convulsions are confined to the muscles connected with respiration.

After the paroxysm is over, the patient should be kept quiet, the heat of the bodys upported, the bowels opened as speedily as possible, and light nourishing food in moderate quantity allowed. At no time should a patient load the stomach. The abuse of stimulants is to be abstained from, and every cause, corporeal as well as mental, which can possibly have the effect of disturbing the balance of the circulation, or exciting the nervous system. If there be marks of diseased action in the brain, the treatment must be more rigid; occasional cupping may be had recourse to, and if there be considerable plethora, a bleeding from the arm may be serviceable, together with keeping the head shaved, and the introduction of a seton in the neck; or a drain is to be made by means of an issue applied to any other part of the body. If worms be suspected, turpentine and other anthelmintics should be exhibited.

With respect to blood-letting, I have often seen it had recourse to, both during the paroxysm and in the intervals. It certainly has been sometimes serviceable in plethoric subjects; but, in general, it does not appear to have any beneficial effect, and occasionally has been injurious; therefore it is a remedy which ought to be used with great discretion.

It has been mentioned, that irritation in the stomach and bowels is a frequent cause of epileptic paroxysms. Some individuals seem to be born with very irritable mucous membranes; and I have seen several epileptics so constituted, that the irritation produced by a laxative medicine, or diarrhœa coming on without any assignable cause, occasioned a recurrence of epilepsy. A lady affected in this manner with epilepsy, was recommended by one of the most learned physicians of the present day, to use dram doses of the powder of misletoe, which she persevered in without any apparent

benefit for some months; at last happening to pass through a country town, and being in want of a supply, an apothecary sent by mistake dram doses of powdered *oak-bark*, which proved of more service than any other remedy she had previously taken. The only inconvenience experienced, was the subsequent difficulty of getting the bowels opened without producing irritation. Since this case presented itself to my notice, I have used astringents several times in similar instances with apparent benefit.

The ammoniuret of copper has been much lauded in the treatment of epilepsy, as also the nitrate of silver. The latter remedy has been pushed to an extent, which would almost surpass belief were the facts not well authenticated. It has been given to the extent of from one to eight grains a day, for weeks, without producing any effect, except slight griping pains, which ceased when the preparation was conjoined with opium. I have seen only two cases in which the remedy had any beneficial effects; and it is remarkable that they had been under the care of the late Dr Baillie; the skin of both was changed from the natural colour to that of indigo, but they were cured of the disease.

Several patients have been under my care, who were able to prevent an epileptic paroxysm if they had time to apply a ligature tightly round the arm, the moment the *aura epileptica* was felt in the hand. This is a curious circumstance; but I can testify to the truth of it. One of these patients was found dead, having, it is supposed, died in the paroxysm; one end of a cord was in his mouth, and the other in the hand, shewing that he had been attempting to apply it round the affected arm. The only disease with which epilepsy is likely to be confounded, is Hysteria; but it is a matter of very little consequence in actual practice; it being the slightest cases of epilepsy about which there can be any doubt, when the remedies applicable to the one disease, are exactly those which should be employed in the other.

Catalepsy is a form of epilepsy which ought here to be mentioned. There are generally no convulsions; the patient remains for a shorter or a longer time insensible, deprived of the power of voluntary motion, remaining in the position in

which the body happens to be placed at the moment of attack; or if an extremity be moved into a particular position by an attendant, there it remains. This form occasionally runs into the true epilepsy with convulsions. It is, however, a disease of very rare occurrence.*

Hysteria.

Hysteria is another disease of the nervous system, the nature and seat of which have not in any degree been explained. It is a disease almost exclusively affecting females; but males are not entirely exempt. I have myself seen several well marked instances in gentlemen, apparently of very different constitutions and habits; but the attacks came on in all of them under the influence of depressing passions.

Phenomena of Hysteria.—The invasion of hysteria is sudden and irregular, sometimes periodical. In the slighter forms, the patient, without any assignable cause, bursts into a fit of weeping, which perhaps is soon followed by convulsive laughing, which may last for a few minutes; and before composure takes place, the patient gives several loud sobs. One of these fits may quickly succeed another, till the patient falls asleep. In more severe instances, complaint is made at first of pain in the abdomen or chest; a sensation is felt as if something were in motion in the abdomen, owing probably to flatus; it moves upwards, producing in the epigastrium a sensation of tightness and of suffocation; and a feeling is experienced as if a ball were ascending to the throat. The belly is tense; the surface is generally cold; the extremities exceedingly so. The countenance varies; sometimes it is red and swollen; or pale, and the features contracted; the pulse is also very variable; and in some cases, palpitations are violent and troublesome.

In the more severe instances of hysteria, there are symptoms shewing the existence of affections of the head and spinal marrow, indicated by spasmodic, and even convulsive affections

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* An excellent article on Epilepsy by M. Esquirol will be found in the "*Dict. des Sc. Med.*;" but the most profound work on this subject, is that published by Baron Portal, entitled, "*Observations sur la Nature et la Traitement de l'Epilepsie.*"

of different muscles, particularly of the hands, face, jaws, and those connected with respiration; they are of the *clonic* kind. The pupils are dilated; and occasionally the paroxysm has a very close resemblance to epilepsy, only that the insensibility is rarely complete, unless the attack be combined with syncope. Occasionally there is retention of urine, but for the most part, there is a copious limpid discharge, in either case attended by symptoms of ischuria. Sometimes the disease commences with shrieking, which may continue from time to time during the whole paroxysm, and often terminates in hiccup of the most violent description. In some cases, dyspnœa is a very urgent symptom. Dyspeptic symptoms often precede the attack; and the bowels will, in general, be found in a very bad condition, with a tympanitic state of abdomen.

Some diseases of a very aggravated nature seem to be ushered in with violent hysterical symptoms, and require a very experienced eye to form a correct diagnosis. In many cases, however, the symptoms of hysteria do not take place till the patient is recovering. When the practitioner is in doubt as to whether any severe organic affection is going on, thus obscured, the patient should be seen at short intervals; and the treatment cautiously conducted in such a manner as to remedy and not aggravate the more severe malady if it exist.

Causes of Hysteria.—It is rare to meet with this disease before the age of puberty, or after the period of life when menstruation finally ceases; in most instances, women are attacked during the time of menstruation; therefore many have attributed the disease to the uterus. Girls of high passions, and those who have been over-indulged when children, are most liable to hysteria; as also those who become impressed with strong religious feelings, accompanied by a sufficient share of common sense to guide them. Women very pregnant, and those who labour under the disorders of menstruation, seem strongly predisposed to hysteria. It appears to affect women of all constitutions,—that is to say, those who are robust and plethoric, as well as the pale, weak, and emaciated. Some attribute hysteria to the bowels; and there are not a few who consider it as a disease of the nervous system. Emotions of

the mind, together with irregularity of bowels, seem to be the chief causes. My own opinion is, that it is a complicated disease, and that the supporters of these different pathological views are all partially correct.

Treatment of Hysteria.—This is difficult at all times, and a radical cure in many cases almost impossible, unless we had the power of changing the temper, altering the disposition, subduing the passions, and relieving the mental distresses, of the fair sufferers. It is of great consequence, however, to attend to the bowels, and to improve the powers of digestion. The diet should be light and nourishing; cold should be avoided, and particularly cold feet; exercise in the open air should be advised; and the patient's mind should be gradually strengthened, by being directed to healthful and interesting pursuits; and much is to be done by a proper intermixture of innocent and rational amusement. During a paroxysm, the stays and all tight strings should be loosened, plenty of air admitted into the apartment, and sixty drops of the *spiritus ammoniæ aromaticus*, or the same quantity of volatile tincture of valerian, may be given in a wine-glass full of water. If the bowels are distended by flatus, laxative medicines will do much to produce its expulsion; these may be assisted by injections, containing half an ounce of the tincture of asafœtida, or a table-spoonful of the spirit of turpentine. Opiates are in many cases serviceable after the bowels have been fully opened. Bleeding has been strongly recommended, and is often had recourse to in this disease; but in pure hysteria, it is scarcely ever justifiable. Bitters, and more particularly the sulphate of quinine, will be found very serviceable in restoring the functions of the stomach and bowels. Should the disease be found to depend on any of the disorders of menstruation, the case must be managed accordingly, as will be pointed out in a subsequent part of this volume. In severe cases, a mustard plaster should be applied over the whole abdomen, and an enema of very cold water is frequently serviceable.

Chorea.

This is a disease of the nervous system, characterized by sudden involuntary motions of various muscles of the body,

without being necessarily connected with fever, or any severe constitutional derangement. The appetite is generally unimpaired, and all the functions natural, except that, in many cases, the bowels are observed to be unusually tardy. But after the disease has continued for some time, the general health becomes impaired, and the functions of both mind and body are at last undermined. It most frequently appears between the age of eight and fourteen, but has been known to occur later; and several instances have fallen within my observation, where the disease attacked individuals after the age of twenty-one, and in two cases between thirty and forty. The later in life the disease appears it is generally found to be comparatively more slow in its progress, and difficult to cure. Generally speaking, convulsive movements, or rather twitches, of the fingers and muscles of the face are first observed. The convulsive movements become in time more decided; strange contortions of the features take place; the disease extends to the voluntary muscles of all parts of the body, and frequently those of the lower extremities are so continuously excited, that the patient appears to be dancing. His walk is very unsteady, and he is most affected when he wishes most anxiously to controul his actions. Another curious circumstance is worthy of being mentioned, that however violent the convulsive motions may be, they cease the moment the patient falls asleep, unless in severe cases of long standing. Articulation and deglutition are frequently difficult, more particularly the former. In young subjects, a more acute form of the disease is occasionally met with. The intellectual faculties are more impaired; the general health sooner gives way; the stomach and bowels appear much deranged, as is indicated by hardness, sometimes unusual softness, and swelling of the belly, together with constipation; the stools have a very offensive smell; and there are sometimes evidences of the existence of the disease denominated *tabes mesenterica.*

Causes of Chorea.—The causes of chorea are very imperfectly known. The opinion broached by Dr Hamilton senior, that chorea depends on a collection of feculent matter in the bowels, is so decidedly erroneous, that I need not say a word upon the subject. It attacks people of both sexes, more par-

ticular y children who are scantily fed, imperfectly clothed, and prevented from taking a proper degree of exercise in the open air. There can be little doubt, that those of an irritable nervous frame are peculiarly the subjects of chorea, and it has some resemblance both to hysteria and epilepsy.

Treatment of Chorea.—This should consist in keeping the bowels regularly open, by means of mild but frequently repeated laxative medicines, never allowing a day to pass without producing at least two alvine evacuations. The diet should be light and nourishing; every indigestible substance should be carefully avoided. All means should be had recourse to which will improve digestion, if it be impaired, and restore the general health. In the two instances which I have met with above the age of thirty, the functions of the stomach and bowels were much impaired. But, superadded to these, the chief existing cause in these cases was the abuse of ardent spirits. The occasional application of leeches to the head when pain is complained of, and the administration of a narcotic when there is much nervous excitement, will be found serviceable. Good effects sometimes follow the use of the warm, at others that of the cold bath. The oxide of zinc, castor, and many other tonics and antispasmodics, have been at various times in high repute; but of these, the carbonate of iron, in doses of two drachms four times a-day, will frequently cure, or relieve the patient in a remarkable manner.

Neuralgic Pains.

Those neuralgic pains of which I am now to treat, are not produced by any appreciable organic lesion; they occur in every part of the body, and often return periodically. The disease is most frequently partial, sometimes, though rarely, it is general, and is not necessarily attended by fever. The *tic douloureux* is a striking example of this affection; it is generally classed as a surgical disease, but is more frequently relieved by medical than by surgical treatment. The bladder, the stomach and bowels, and, it would appear, the heart also, are liable to be affected with neuralgia. The most troublesome and most frequent forms of the disease which I have met with in practice, are those abdominal pains which affect women,

more particularly at the menstrual periods, which shoot down the thighs. They sometimes appear to begin in the back, and extend towards the abdomen, in which case the bowels are generally found obstinately constipated. The discharges by stool consist either of very hardened feces, or of gelatinous matter, resembling half-digested worms; at other times, they have a frothy, yeasty appearance. Affections of the bladder frequently supervene, particularly if the attack come on during the menstrual period. This affection is of a different nature from that which is called dysmenorrhœa. In this disease the menstruation may be copious, of a natural appearance, and not attended with pain.

Causes of Neuralgic Pains.—Frequently unknown, and for the most part obscure. They may be occasionally traced to disorder in the organs connected with digestion; and in some instances may probably be connected with disease in the spinal marrow, or in the nerves themselves.

Treatment of Neuralgic Pains.—In *tic douloureux*, I have seen the knife used very often, and but seldom with permanent advantage. If the pain have left the part affected, it has attacked another nerve in the vicinity,—a strong proof that the disease is generally more deeply rooted in the system than is commonly imagined. In the treatment of neuralgic affections, proper regulation of the bowels, diet, and habits of the patient, and avoiding exposure in cold damp weather, are all points of the utmost importance. Almost all tonic and narcotic remedies have been successively in great repute; thus we find that bark, iron, zinc, and other tonics, as also opium, musk, cicuta, hyosciamus, belladonna, and stramonium, have each had their advocates. If the pain be periodical, the use of large doses of quinine will sometimes be found beneficial. Many severe and long-standing cases have been much benefited by dram doses of the precipitated carbonate of iron; but to subdue a paroxysm of pain, and produce a long interval of ease, the sedative solution of opium, given in small quantities, (15 or 20 drops,) by injection, or the acetate of morphia, in doses of 1-4th of a grain every 3d or 4th hour, will be of use. Several very bad cases of general neuralgia have fallen under my observation, and these remedies were found beneficial

after all others had failed. One case, in particular, may be mentioned: A gentleman who had been frequently liable to partial attacks, was seized with general neuralgia during the period when he was preparing for graduation. His general health became much impaired; and not being acquainted with any medical man in particular, he sent for one of the gentlemen whose lectures he was attending at the time, but who offended him very grossly, by discrediting the account of his sufferings, and by terming his complaint "*a graduation sickness.*" After the lapse of a month or six weeks, I was requested by a family who were interested in his welfare to visit him. He was much emaciated, had a pale and haggard countenance, and was almost worn out by pain and want of rest. The disease was general, but the part most severely affected was the neck, where the pain was so much aggravated by the slightest touch, that he was obliged to sit with his neck and shoulders bare. He had almost abandoned the intention of graduating. After putting his bowels into proper order, I gave him, while suffering a very severe paroxysm of pain, a dose of the sedative solution of opium; and in less than ten minutes he felt more relief than he had experienced for several months; and by repeating the dose a few times upon the threatening of a paroxysm, he got rid of the disease, his health and strength soon recovered, he renewed his studies, and passed his examinations with considerable eclat. Since the publication of the last edition, the attention of the Profession has been directed to the external employment of veratria, by Mr Turnbull of London. Five or ten grains of the medicine are to be mixed in an ounce of lard or simple ointment, and a small quantity rubbed carefully on the pained part. I can speak with confidence of the relief afforded by this application in six cases of *tic douloureux*, but it did not perform a cure in any one.

In the affection to which I have alluded, as occurring in women, I have seen considerable benefit from the occasional use of a draught composed of turpentine, with an equal part of castor oil, and conjoined with twenty or thirty drops of the sedative solution. One of the most potent measures, after the diet has been regulated, and the bowels have been put into

good order, is to produce, from time to time, an eruption on the abdomen or loins, by means of antimony ointment. In an obstinate case which lately occurred, much relief followed the use of strychnia, in doses of one-twelfth of a grain, repeated four times a-day, till it produced imperfect vision, with some degree of headache; it was then intermitted for a few days, and when resumed, was given only twice a-day. Some practitioners speak highly of cold bathing, while others do the same of warm; but I cannot say that I have seen either of them beneficial. Routine practitioners are too much in the habit of bleeding whenever the pain is severe, and of giving calomel or blue pill when the pain is referred to the right hypochondriac region. I have been consulted by individuals whose constitutions were injured by the frequent repetition of powerful remedies, and by some who never can regain the loss of blood, or recover from complaints thereby produced, and the too frequent use of mercurial preparations.

About the year 1812, Mr William Wood of Edinburgh called the attention of the Profession to a neuralgic affection which he denominated "Painful sub-cutaneous tubercle," and has lately published further observations and cases in the 3d vol. of the Transactions of the Medico-Chirurgical Society. But as this is avowedly connected with an enlargement of the affected nerves, requiring surgical, rather than medical aid, I will conclude by recommending the perusal of Mr Wood's learned and interesting essay.

CHAP. V.

APOPLEXY—PARALYSIS.

Apoplexy.

Apoplexy is generally characterized by loss of sense and voluntary motion, the patient continuing comatose for a shorter or a longer period. It is sometimes attended with convulsions, and frequently followed by paralysis of some part of the body.

Phenomena of Apoplexy.—To detail the varieties of apoplexy, with a view to make minute symptomatical distinctions, would be an endless and really an unprofitable task; as practical men are well aware, that at the commencement of the attack, experience does not enable them to tell whether the case is to be slight, terminating in recovery, or fatal. This is well exemplified, by observing the termination of those cases in which the loss of sense and recollection exist only for a few minutes, and in which the recovery appears as complete as it is sudden; yet perhaps in a few hours afterwards coma takes place, and death soon follows. In my lectures, I usually divide apoplexy into two varieties:—1. That in which no lesion of the brain has taken place, and after death no morbid appearances can be discovered; this has been called simple apoplexy. 2. That in which serous effusion, or extravasation of blood, is found upon dissection, and which has been termed extravascular apoplexy.

Although this plan is open to many objections, yet I am disposed to adhere to it for the present.

Apoplexy very rarely comes on without precursory symptoms, which, however, are sometimes so slight as to be disregarded. These are vertigo—headache—a sense of pressure applied to the head, and fulness, or a feeling as if the head were a great deal larger than natural—irritability of stomach—singing in the ears—occasionally impaired vision, double vision—some degree of deafness—impaired powers of articulation—weakness of memory and judgment, sometimes slight incoherency—restlessness or lethargy—startings, and a weakness of the limbs, which gives to the patient a staggering gait, as if he were inebriated: these symptoms may take place with or without rigors. Should an individual complain of several of these symptoms at any period of life, he may be regarded as on the very brink of a serious affection of the brain. If they occur in a person of a full habit with a short neck, the danger will be still greater; and if in the decline of life, it might be safely said that he is in immediate danger of an attack of apoplexy, although by care and good treatment the disease may be warded off for an indefinite period.

The form of the disease which I shall venture to term the slightest, is that in which the loss of sense and voluntary motion are very transient. It continues for a few minutes only, and leaves perhaps a slight paralytic affection of the muscles of the mouth; the patient is commonly thought by the attendants to have been only in a faint, from which he quickly recovered. The variety which may be called the most severe, is that in which the patient has for some time complained of some of the premonitory symptoms already noticed, is suddenly seized with loss of sense and voluntary motion, accompanied perhaps by convulsions, the respirations being stertorous, the pulse weak and frequent, and the patient never recovering from the state of coma. In practice, we meet with every variety between these two extremes.

During an attack, the limbs are generally flaccid, although occasionally some of the muscles may be found rigidly contracted; and in other cases, as has been already mentioned,

general convulsions take place. The face is red, sometimes of a very dark colour; but occasionally it is pale and ghastly; the features are swollen, and the mouth perhaps drawn to one side. The respiration is sometimes stertorous, at others, not in the least so. Pupils are occasionally dilated; sometimes contracted, but almost always immoveable. The pulse is sometimes full and slow, not exceeding thirty beats in the minute; at other times it is weak, easily compressed, and quick, beating perhaps one hundred and fifty in a minute.

In those instances in which death does not take place, and no organic lesion is produced, the patient soon recovers some degree of sensibility, and the power of muscular motion, when it may be discovered that one half of the body is paralyzed; the pulse, if previously slow, now rises to the natural standard; he then recovers his senses, perhaps very quickly, and looks about him with an expression of surprise; he also gradually recovers his speech, although he may have difficulty in articulating. In some hours, these symptoms will be found much diminished; he will gradually recover the power of his limbs, and in ten or twelve days, although weak, he may be pronounced to be nearly well. Instead, however, of recovering sense and voluntary motion immediately, patients sometimes continue comatose for some hours, and then recover more or less quickly in the manner already stated, being, however, at times lethargic for several days.

In other cases, the patients remain much longer comatose, and recover much more slowly, with some degree of loss of memory and of speech, which may be temporary or permanent, together with paralysis of one half of the body, or only of one limb, the use of which may be either never or partially restored. I have seen several cases in which both mind and body were permanently reduced to a state of childhood.

In other cases, patients remain for months in a lethargic, paralytic state, from the time of attack till death takes place, without the least appearance of amendment.

The period between the first appearance of any symptoms which can be called premonitory, and the actual apoplectic seizure, varies much; sometimes years intervene, at others an instant after complaining for the first time of violent pain in

the head, or of giddiness, the attack comes on. The period between the attack and the return of sense and voluntary motion, also varies greatly. The period between the occurrence of the first symptom and recovery, is also very various. The intervals between the attacks are by no means uniform; sometimes only a few minutes intervene; at others, hours days, weeks, and even years.

Many people survive fits of apoplexy even when small effusions of blood have taken place into the substance of the brain, and so far recover as to be able to transact their ordinary business; but it very frequently happens, that if the patient survive an effusion of blood for a few days, a new train of symptoms will be excited,—symptoms produced by inflammatory action in the brain, or membranes immediately in contact with the effused fluid.

Causes of Apoplexy.—Apoplexy is said to be hereditary. It may come on at any age, but in the great majority of cases the age is above fifty; certainly it may be said to be a disease of the decline of life. The individuals most predisposed are those of a full plethoric system, who have what is called a stout frame and short neck. Full living, idleness, sedentary occupations, late hours, and sleeping on soft pillows, increase the tendency to this disease, together with every other cause which disturbs the balance of the circulation. Diseases of the blood-vessels of the brain lead to rupture of their coats, and the consequent effusion of blood; viz. ossification of the arteries, aneurism,* and obstructions in the sinuses; and it is also well known that hypertrophy of the heart sometimes produces apoplexy.

Appearances on dissection in Apoplexy.—On cutting through the scalp of persons who have died of apoplexy, a considerable quantity of blood generally issues from the incisions. On removing the calvarium, the membranes are sometimes observed to be very vascular, with some fluid beneath the

* There is a splendid preparation in my Museum, of one large and two small aneurisms of the sylvian artery; the largest of which, about the size of a hazel-nut, burst, and a large effusion of blood took place with instant death. The patient was only 23 years of age, and the brain was very much broken down by the effusion.

arachnoid; occasionally, although rarely, blood is effused between the arachnoid and the pia mater, giving an appearance of ecchymosis; or the effusion may have taken place into some part of the substance of the brain. The parts which I have most frequently found affected, are the *corpora striata* and the *thalami nervorum opticorum*. The ventricles are sometimes found distended with coagula; and the cerebellum occasionally suffers. Effusion of a serous fluid in greater or less quantity is found in the ventricles. It however sometimes happens, that no morbid appearance whatever can be detected.

In old apoplectics, who have survived many shocks, cysts are occasionally found, enclosing a clot of blood, or a fluid resembling pus, and sometimes they are empty, the contents having probably been absorbed. Some writers have described an appearance which they suppose to be a cicatrix, an almost complete restitution of parts having taken place. Sometimes we find considerable portions of the brain surrounding the effusion in various stages of inflammation, either shewing marks of increased action or complete ramollissement. On some occasions most extensive destruction from inflammation has been discovered in the substance of the brain, a remarkable instance of which is subjoined.

A gentleman, aged 51, stout in make, plethoric in constitution, having a tendency towards obesity, and accustomed to full living, was found dead in his bed after having had eight or nine apoplectic attacks, some of which were succeeded by temporary paralysis. The fit which preceded that which proved fatal, took place seven or eight weeks previously; it was severe, with a pulse as slow as 30 beats in the minute. Medical aid was promptly obtained, and he was saved by timely loss of blood. Subsequently to this attack, he was able to transact ordinary business, and actually attended a public meeting. Nay, on the night previous to his death, he played for some time at the game of backgammon, and evinced his usual acuteness of mind. On examining the head, the apoplectic attacks, and the paralytic symptoms of which this gentleman had so long complained, found a very sufficient solution in the mass of disease within the brain. The *dura*

mater was found to adhere round the corona with such firmness, that it resisted every attempt at separation without tearing, and the skull itself was rather more than usually dense. On the upper surface of the brain a quantity of serous fluid was effused, while at the base both of the skull and brain, the blood-vessels were unusually numerous and full, giving an appearance of redness to the base of the skull, not often to be met with. The principal arteries of the base were enlarged in size, and presented numerous points of ossification, as did also the minute branches in every part of the brain. The ventricles were found to contain a small quantity of fluid, and their whole surface was red and vascular. In the third ventricle part of the *thalami* firmly cohered; but neither here, nor at the base of the brain, did the fulness of the vessels extend much beyond the surface. On cutting into the substance of the brain, the traces of much disease and an evident softening became apparent, particularly in the ganglions of grey substance called *corpora striata* and *optic thalami*, in which the softening had passed on one side almost into suppuration; and several regular cysts were discovered, four on the right side of the brain, and three on the left; but none of them were of large size; and although both hemispheres were diseased from about the centre of the middle lobes forwards, yet the right had suffered considerably more than the other. Such anatomical evidence is rarely found of life having been protracted with the preservation of intellect, till the whole centre of the nervous system underwent such a change as that described in the above case.

Treatment of Apoplexy.—Some routine practitioners will be found invariably to bleed in cases of apoplexy, without reference to the period of the disease and the state of the pulse. I have little doubt, that valuable lives are occasionally lost, which otherwise might have been saved, by avoiding the lancet. If the pulse be slow and strong, a happier result may be expected from V. S. than if it be quick and weak. The feet should be put into hot water, in which mustard has been mingled; the garments should be loosened; the head shaved, and cold cloths applied. Active purgatives must be speedily administered, to be assisted by injections

of turpentine, particularly if there be evidence of flatulent distention of the bowels; and blisters are to be applied to the lower extremities.

Should a patient be fortunate enough to recover from the immediate effects of the attack, much may be done by subsequent treatment, to prevent a return of the disease. It is of vital importance to keep the bowels daily and freely open, to avoid cold feet, and exposure to cold damp air. Regular hours and exercise are to be enjoined, and a seton in the neck will be found very beneficial. Frequent bleeding, whether by the lancet or by cupping, cannot be too strongly deprecated; our business being rather to prevent plethora by the above means, and by a proper regulation of the diet. I know no plan more likely to create constitutional distress, and to promote the quick formation of blood in the system, than frequently repeated bleedings. A great deal of mischief is done by keeping patients too long upon slops; it is far better, in many cases, after the first danger is over, to allow a small quantity of animal food to dinner, and toasted bread or biscuit in moderate quantity for breakfast and tea, than to give them a general order to live on farinaceous food, which, after all, many will not long adhere to, or if they do, they will take a large quantity to counterbalance the quality of the food. Restrictions should be made respecting the amount of fluid to be consumed in the course of the twenty-four hours; and, in all cases where valuable lives are concerned, and when the patients move in that rank of society where they can obtain every comfort and attention, it will be found of great consequence to regulate the quantity of food and diluents by weight and measure. All causes of anxiety should if possible be removed; the patient should sleep in a large well-aired room, upon a hair mattress; he should use the patent air-pillows, with the head and shoulders somewhat elevated.

Paralysis.

Paralysis appears to have been generally confounded with apoplexy by the older writers, who thought apoplexy was a complete paralysis, and looked upon the latter as a partial apoplexy.

This affection is a frequent result of apoplexy, as well as of inflammation of the brain, and of disease of the spinal marrow; but it often exists without any apparent organic lesion.

Paralysis has been divided into several varieties. 1. Paralysis of the nerves of motion, which take their origin from the anterior part of the spinal marrow;—2. Paralysis of the nerves of sensation, which take their origin from the posterior part of the spinal marrow;—3. Hemiplegia, which implies the existence of paralysis in one half of the body;—4. Paraplegia, which signifies that the lower extremities are paralyzed;—and, 5. Partial Paralysis, as of the muscles of the mouth or of an extremity.

Paralysis of the motive powers may exist in very different degrees; it may be complete or incomplete; in the latter case the individual uses the affected limb awkwardly, and it sometimes feels weaker and heavier than the other.

Paralysis of sensation may also exist in various degrees. Sensation is scarcely ever altogether destroyed, but is rendered more obtuse than usual; but in some instances of paralysis, the sense of touch is very acute, so much so as to be a source of considerable suffering to the patient.

At all ages individuals may become paralytic. I have seen several children born hemiplegic, and young subjects are sometimes attacked with the disease; but it is more frequently an affection of advanced age, and of men than women.

Phenomena of Paralysis.—When palsy takes place without being preceded by apoplexy, it is not generally accompanied by marked disturbance of the vascular system, or of the respiratory organs. Frequently there are premonitory symptoms, similar in many respects to those which oftentimes precede apoplexy, and to a practised eye announce that a serious affection of the nervous system is at hand. We sometimes perceive weakness of an extremity or numbness, together with coldness; and occasionally there is violent pain in a limb. I have known paralysis to affect many people who had been subject for years to violent headaches, sudden pains in the course of the spine, and tingling in the extremities. As the disease advances, the weakness is more apparent; the patient easily loses his balance; he always feels unsteady, and experi-

ences increasing difficulty in going down stairs, and in walking on an inclined plain. By and bye he is obliged to use a stick; at length he cannot walk without receiving support from an attendant; and at last he is unable to move from one apartment to another.

Although the disease sometimes approaches so slowly, that I have known persons to be seriously threatened for years previous to the paralytic attack, yet at other times it comes on very suddenly. Frequently there is momentary insensibility, and the patient's mouth is found to be drawn to one side; or the disease may attack an arm, or a leg; or one half of the body may be affected. Sometimes the patient becomes paralytic without any affection of the brain. Violent cramps sometimes take place in the extremity, which soon after is found paralytic. The bowels are generally very torpid; sometimes the muscular powers of the bladder are paralyzed, at other times those of its sphincter; in the former case, the patient cannot expel the urine, in the latter it is passed involuntarily; frequently the rectum is similarly affected. The pulse will be found in different states; frequently quite natural; but in the affected limb it is generally observed to be weaker than in the sound one. The limb generally becomes emaciated, although to the patient's feelings it may be considerably larger than natural; it is usually colder, although in rare cases it is found to be above the natural heat. The mental faculties continue in many cases of paralysis quite unimpaired; in others, they are slightly affected, the patients being sometimes a little incoherent, or they betray some weakness of judgment; occasionally a state which has been called second childhood is produced, and continues till death. Of all the mental faculties, memory appears to be the one most frequently affected; the names of individuals and of countries will be forgotten, while circumstances connected with them may be often alluded to by the patient, who will be found in the course of conversation to forget words; and it is curious that the memory will be more perfect respecting transactions which occurred twenty or thirty years before, than of those which took place during the previous day. These circumstances, together with the appearance of the patient, particularly the expression of countenance,

which is frequently silly, too often give an impression to a stranger, that his mental faculties are weakened or destroyed, and the more so if, as sometimes happens, the saliva be running out of the corners of the mouth, and his speech is affected. This is most important, as a will was lately made by a gentleman when in this state, which was afterwards disputed by the heir-at-law: all the witnesses who had frequent intercourse, and several who had occasion to transact important business with him, were able to swear that he was of sound mind at the time, and for some time after the will was executed; whereas, on the other hand, some who only saw him occasionally, judging from his appearance, and the lethargy with which he was at those times affected, swore that he was neither capable of thinking nor of acting properly.

Causes of Paralysis.—There can be no doubt that paralysis of every kind and degree may be produced by disease in the brain and spinal marrow. It is, however, more frequently produced by disease of the spinal marrow. Facts seem to prove that paralysis may be produced by disease of the nerves of the affected limb, without any lesion in the central parts of the nervous system; and I also believe, from the effects of certain remedies, that the disease under consideration may be the consequence of functional derangement of the nerves of the part affected, as well as of the brain and spinal marrow. Too much sexual indulgence, and certain noxious and disgusting habits, occasion palsy, particularly paraplegia.

Treatment of Paralysis.—We should be guided in the treatment of paralysis, by the duration of the disease, and by the pathological condition of the body on which this symptom depends. If the disease be recent, and the individual not weakened, blood may be drawn both generally and locally, care being taken not to carry the bleeding too far. Strong laxatives must be exhibited at first, at short intervals; but subsequently, during the progress of the case, they are to be given at longer intervals, so as to produce one or two evacuations daily, keeping in mind, that in most paralytic affections, the stronger purgatives are required to produce even a moderate effect. Emetics have been recommended, but they should not be employed unless there are evidences of a loaded sto-

mach; little danger need be apprehended from any temporary increase of determination of blood to the head which is supposed to take place in the act of vomiting. Frictions on the affected part, with or without stimulating embrocations, are said to be serviceable, as well as contra-irritation in the course of the spine, produced either by any of the ordinary rubefacients, or the tartar-emetic ointment; caustic issues, as recommended long ago by Mr Pott, may be applied; or moxas, which have been much praised by Dupuytren and Larrey. Electricity and galvanism have been used in paralytic affections; but I cannot say that I have ever seen them beneficial. Some employ the hot bath, and others the cold. If it can be commanded, the patient should sleep in a well-aired apartment; and it is of great consequence to keep his mind amused without being fatigued.

The nux vomica has been much employed of late years in paralysis. It has been tried to a considerable extent in the hospitals at Paris; and there can be no doubt that it has occasionally done good. It is exhibited in the form of powder, and of spirituous extract; of the powder two grains, of the extract three, repeated from two to six times daily, constitute a proper dose for an adult. It has also been given in the form of injection. In some cases, a tendency to muscular contraction appears in half an hour after its administration; and it is curious that the sound parts remain unaffected. It is said to increase the appetite, and sometimes to produce stupor, with a feeling of intoxication, and in an over-dose, tetanic convulsions. Still more recently, the active principle of nux vomica, called strychnia, has been employed. I have used both preparations in a number of cases, and as yet have seen only one case in which the nux vomica was decidedly beneficial; it was increased in doses of from two to eight grains daily, and its use persisted in for several weeks. Of the strychnia, I have exhibited four or five twelfths of a grain daily in several instances; and in two cases the drug seemed to produce spasmodic muscular contractions of the paralyzed limbs. The strychnia, in particular, is worthy of further trial, as in many cases which do not depend on organic lesions in the central

parts of the nervous system, it will probably be found very beneficial.

Dr Bardsley, (Manchester,) states, that he employed the strychnia in some cases of paralysis with no benefit, in others with only partial advantage, but in the majority with complete success. He considered that it may be an efficacious, though not a certain remedy in this affection.* Dr Bardsley has given thirty-five cases,—of which twenty-two were cured—ten relieved—in two it had no effect—and one patient left the hospital.

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* Hospital Facts and Observations, p. 38.

CHAP. VI.

INSANITY—HYPOCHONDRIASIS—AND DELIRIUM TREMENS.

Insanity.

This, I am aware, is a term of very extensive application. Under it, I mean to comprehend every alteration of the functions of the brain from a state of sanity, with the exception of the delirium which so frequently accompanies fever and intoxication, and hypochondriasis.

There are many degrees and shades of insanity. Some persons may be affected with the most violent delirium and incessant raving, furiously threatening the attendants with destruction, wrong alike in their perceptions and reasoning faculties. Others may have some eccentricity, produced by an error of perception, a wrong impression, or some slight derangement of judgment.

Cases are frequently met with in practice, where there is diseased perception with more or less derangement of judgment, or the former may exist without any such complication. For example, an insane person frequently perceives objects which do not exist, or he may see a post which his diseased perception transforms into a monarch; he will kneel before his majesty, deliver an address, and kiss hands; every act as it is done at court will be correctly imitated. Nothing can be said to be wrong about the insane person, except the first erroneous perception; all his actions tally with the situation in which he supposes himself to be placed. We meet with

others who take up an erroneous impression, the reasoning faculties being perfectly sound, so that a man may conceive that a minister of state has been guilty of some dereliction of duty. He will write upon the topic, make out charges against the individual, and reply to letters received upon the subject; and yet no one, upon reading his correspondence, or from conversing with him, could discover any error of reasoning, or any expression which would lead him to conclude that he was insane; nothing is incorrect but the first impression. In some instances, we meet with errors in the reasoning faculties, which frequently lead men to ruin their fortunes, and bring an accumulation of distress upon their families, by following out some castle-building speculation, the absurdity of which is too apparent to every one but themselves. In others, we can only discover a disordered state of the association of ideas, or a disproportionate emotion from the application of slight causes. On other occasions, we find individuals believing the fancies of a wild imagination to be realities; they transform themselves into kings and peers, or fancy themselves reduced in circumstances, even to beggary. In other cases, complete fatuity takes place.

These different states may be variously mingled and modified into endless varieties of insanity, as it is usually treated of in books; and the symptoms may be still more diversified by the degree of excitement or depression which co-exists, together with the peculiarities of constitution, and the state of the patient's health.

Insanity sometimes makes its attack suddenly; but in general it is slow in its progress, although decided in its precursory symptoms, which, however, develope themselves differently in different cases:—One patient shews elevation of spirits, speaks loud, is easily irritated, and some eccentricity of conduct is sooner or later observed; at last he will be found to follow out some particular hallucination, which will occupy his thoughts more and more completely as the disease advances. Another individual will shew depression of spirits; he will be observed to be more cautious, timid, or shy in his manner; he thinks he hears the voices of individuals planning his destruction, or robbing him of his property; or his depres-

sion of spirits may be owing to religious doubts as to his own worthiness, or to the existence of a future state; or he fancies himself haunted by evil spirits.

We sometimes meet with an intermediate condition, where an individual shews his ordinary state of temper and disposition; he evinces neither increased excitement nor depression; while an erroneous notion, religious, political, or professional, haunts his imagination for weeks, months, or even years, which shews itself occasionally, but never disturbs his health, or alarms his friends, till some accidental circumstance gives the mental disease activity, when it breaks forth in a most decided manner.

Some individuals show a great desire to quarrel, litigate, and to take personal revenge for imaginary insults and injuries; but all these propensities may exist separately:—A man may be extremely quarrelsome, but, if properly managed, easily appeased, and may never shew any tendency to take the life of a fellow creature, nor would he do any thing to hurt him. Another will take revenge only in one way, by litigation; while the third, but happily this is the rarest case, would murder all and sundry in the most cold-blooded manner, and when under restraint, will glory in the thought of murders he has committed only in his own imagination; or in the most ingenious way he will endeavour to excite hatred between his keepers, so as to induce the one to murder the other. Others show a most determined propensity to commit suicide, and sometimes follow it out with so much pertinacity, as to elude at last the vigilance of the most attentive keeper; and, what is very curious, each will have his own reason for the act. The vanity of one has received a blow which has lowered him in the eyes of the world, and he destroys himself because he cannot live dishonoured, degraded, or even laughed at. The fear of another induces him to commit the rash act, with a view of escaping from some evil spirits, or of disappointing the machinations of some relatives who have conspired either against his peace, his life, or his property. I have known a few instances also of men committing suicide, who could not survive the loss of a wife or child, and it would appear that the act was committed under

the impression that their departed spirits were to be immediately afterwards re-united.

Several curious circumstances quickly attract the attention of those who are in the habit of attending this unfortunate class of patients. 1. A hatred of, or indifference towards those to whom they were previously most attached, because these are the individuals who, the maniacs suppose, have conspired against them, and have ultimately deprived them of liberty. 2. Their physical powers are frequently not at all affected. Thus a body of insane soldiers under confinement, not completely fatuous, will fall into the ranks upon the usual signal being given, and will perform a number of mechanical acts at the word of command, with nearly as much attention and precision as if they were sane.* 3. The natural functions are generally not materially impaired, unless it be in those cases where insanity supervenes upon some other disease, or is produced by an injury of the head, some organic lesion in the brain, or by long-continued indulgence in the use of intoxicating liquors, when there may be heat of skin, quickness of the pulse, and a train of nervous and other symptoms, which need not at present be more particularly alluded to.

Causes of Insanity.—Unfortunately there can be no doubt that insanity is hereditary, at least under certain limitations; but I believe it may be warded off for many years, and in some cases entirely prevented, by proper management; which principally consists in keeping all the functions of the body in a natural state, by diet, exercise, and attention to the bowels, as well as by avoiding all excesses, keeping the passions under controul, and the mind properly exercised. Gluttony and drunkenness are too frequently the causes of insanity, and particularly the latter, in cases where no hereditary predispo-

* This I had an opportunity of seeing at Chatham, where a large establishment has been formed for the insane officers and soldiers of the British army. Fort Clarence is, I believe, exclusively used for this purpose, and the unfortunates there have the enjoyment of good air and exercise, are well fed, kindly used, and carefully superintended. Long may it remain a monument to the good feeling and benevolence which characterized his late Royal Highness the Duke of York, and to the zeal and exertions which Sir James M'Grigor has always displayed to increase the comforts of the British soldier.

sition can be traced. Individuals seem also to be more and more predisposed to the occurrence of insanity as age advances, it being rare before the age of puberty. Among the passions, love, "by which the young and tender wit is turned to folly," may be particularly mentioned as a fertile source of the malady under consideration, particularly in females. It is rare to meet with a case of insanity from this cause in men, for reasons which are too evident to require being mentioned. Intense and long-continued anxiety respecting the results of extensive mercantile speculations, as also the pernicious vice of gambling, are frequent causes of insanity. It is likewise a disease which sometimes attacks females after parturition, and also, when the predisposition is strong, during the diseased states of menstruation.

Appearances on dissection in Insanity.—Nothing satisfactory has yet been discovered, for, although many organic lesions have been found in the brains of individuals who have died insane, yet the same lesions have been observed where no insanity existed; and in many cases of insanity, no diseased appearance whatever has been detected in the head. Hence, in the present state of our knowledge, I am inclined to attribute the various and ever-varying phenomena which occur in insanity, to functional disease of the different parts of the cerebral mass.

So far for the symptomatical description of insanity, which, in my opinion, teaches nothing of the nature and seat of the disease. But if it be true that the brain is a congeries of organs, that each performs a peculiar function, and if we admit insanity to be a disorder of function, then indeed there seem to be sufficient grounds to warrant my departing from the usual beaten track, and submitting to my readers a short account of insanity, founded upon the phrenological principle that the brain is a congeries of organs. According to Dr Andrew Combe, in his able work on Insanity, insanity is not a specific disease, but a symptom of disordered action in the brain or organ of mind, and, like every other disorder of function, it may proceed from a variety of different states. The delirium of fever is one form of disordered mind, which is always viewed as a symptom, and so ought all other forms.

The brain being to the mind what the eye is to vision, it follows that, just as vision is deranged by many pathological states of its organ, such as ophthalmia, iritis, cataract, &c. so may the mind be deranged by many states of the brain. The sufferers on the raft of the Medusa became mad from starvation and exposure; while many become so from excess, particularly in stimulants. The asylum at Milan is filled by lunatics from bad feeding, and almost all recover by nourishing food; while Bayle, at Charenton, finds many cases arise from chronic meningitis; and Broussais declares, that in the early stages it is so obviously from inflammatory excitement, that it may often be cut short by free leeching, as certain as pleurisy is by blood-letting. Hence insanity is not the same disease in all.

Insanity, being a symptom of morbid action in the brain, springs naturally from causes affecting its health, and hence a great affinity between the causes of acute cerebral affections, and of those on which insanity depends. The *hereditary* tendency depends on a peculiarity of nervous constitution, and is of primary importance. *Excess* of some mental qualities leading to eccentricity, predisposes in irritable constitutions, from the high action into which the corresponding predominant organs are thrown; and hence the latter are generally those whose manifestations are deranged, as proved in Dublin by Mr Combe having, in so many instances, pointed out correctly *from developement*, the probable form of the mental affection. Other predisposing causes, such as age, sex, profession, &c. are referable to the same principle.

The *exciting* causes are, *whatever disorders the action of the brain.*—That organ requires regular exercise for its health and preservation, and for the improvement of its functions, just as other parts do, as the muscles in fencing or dancing. Practice in the latter instances increases nutrition, and consequently, power; and it gives facility of combination to produce a given end. The same organic laws preside over the brain. Consequently, *excess* of exercise, as in intemperate study, excitement of passion, anxiety and strong mental emotion long sustained, leads to morbid cerebral action, with derangement of function, in irritable subjects. *Deficiency* of

exercise, or idleness, leads equally to diseased action and manifestations, as exemplified in the melancholy and ennui of the retired merchant or soldier, and in the numerous victims in the unoccupied classes of society. Local causes act by disordering the brain. Blows on the head, *coups du soleil*, intense cold, drunkenness, meningitis, &c. shew this.

Dyspepsia, and other disorders of the abdominal viscera, excite it secondarily in some instances in *predisposed* subjects, but, in general, mental causes have preceded. The same remark applies in nymphomania and erotomania, in which the affection of the generative organs is generally the effect, and not the cause, of the cerebral disturbance. The brain, in short, is more frequently disordered by *direct* than by indirect causes, and in this respect the analogy between it and other organized parts is preserved.

The *symptoms* indicative of insanity consist of deranged cerebral functions and local phenomena. Every sense, every nervous function, and every faculty of the mind, may be involved in the disease or not, and hence indescribable varieties occur. The *true standard is the patient's own natural character*, and not that of the physician or of philosophy. A person, from excess of developement in one part of the brain, may be eccentric and singular in his mental manifestations, and yet his mental health be entire. Before we can say he is mad, we must be able to shew a departure from his *habitual* state, which he is incapable of controuling. An irascible man may be very boisterous without being mad; but if a mild and timid creature become equally boisterous and irascible, we may fear for his wits. One may be *naturally* suspicious, jealous, and cunning, without being insane; but if a man of an open, generous, and unsuspecting nature, becomes so, danger to his cerebral health is at hand. The derangement may consist in *excitement* of the patient's predominant qualities, in *diminished* action, or in *perversion* or *vitiation* of function. A proud man, who, during disease, fancies himself a king, is an instance of the first condition, or that of excitement of function;—one who humbles himself in the dust, and fancies himself unworthy of regard, is an example of the second, or diminished function;—while one who fancies him-

self something out of the ordinary course of nature, is a specimen of perverted or vitiated function;—or one who is attached to friends when in health, may, when insane, either have inordinate love for them, be indifferent, or have a hatred and aversion to them: and so on with every feeling and faculty of the mind.

The existence of digestive derangement modifies the mental state, and gives greater anxiety and irritability than when the stomach, liver, and bowels act well. Other complications modify in other ways.

Monomania, religious, erotic, and other manias, are not different diseases. One organ or faculty being chiefly affected, and the rest entire, give rise to monomania; but the proximate cause may be, and often is, the same as when all the organs and faculties are affected. Religious despondency is a mere symptom also, and appears because the function of some cerebral parts is to manifest religious feelings, and those being sick, the function necessarily suffers, and the feeling is altered. But the *same* pathological state affecting combativeness and destructiveness, would produce furious mania.

Monomania and melancholy are less easily curable, not from the proximate cause being more serious, but from the other faculties and reason succeeding in longer concealing the existence of aberration; whereas in mania, it betrays itself early in spite of the patient.

Insanity is not a state separated by a broad line from sound mind. Every gradation is observable, and we perceive morbid action before we can venture to say that the patient is insane. Some are cured at home of mental affections in a few weeks, who, if sent to an asylum, would become mad, and remain so for months or years.

Treatment of Insanity.—The first important question which naturally suggests itself in the treatment of insanity, is what combination of circumstances ought to exist, before a medical man is entitled to commit any individual suspected of labouring under it to an asylum, or to any other place, where he is not only deprived of his liberty, but is placed under some degree of restraint. This is a duty which I fear is still too generally performed without sufficient attention to all the

features of the case. Medical men should take care not only to be themselves satisfied of the necessity of such a serious step, but that they have sufficient proof, which cannot fail to convince a jury that it was most necessary. If an insane person evince a propensity, either to take away his own life, or threaten that of another, there can be no doubt that confinement is absolutely necessary. If an individual, in a state of mental aberration, disturbs the public peace, and is a source of annoyance to any one, a medical man, if consulted, should recommend, as a preliminary step, the interference of the local authorities. If a patient act in such a way as to offend public morals, he being insane, or even eccentric, I also think an appeal should, in the first instance, be made to the same source for protection. If a person be unable to manage his own affairs, if he enter into such speculations as none but a madman would think of undertaking, which must be connected with some striking aberration of mind, or if he squander away his money, as in buying a pack of hounds, or expensive paintings, which neither his fortune nor his rank in life entitle him to do, a medical man, consulting his own safety, and the respectability of his character, will take care that he is able, by the evidence of a sufficient number of disinterested witnesses, to prove the fact to the satisfaction of judge and jury, before he signs the committal of any lunatic.

A man may be perfectly mad on one point, and yet be quite able to manage his own affairs. Thus he may suppose that his legs are made of glass, and that if he attempted to stand they would break into a thousand pieces. A second may fancy, that if he attempted to pass through a door, he would be crushed to pieces; a third may imagine himself to be a king; and yet they might all be able to manage all the transactions of ordinary life, and be wrong upon no other point. Surely it would not be justifiable in any medical man to commit such patients to a mad-house. Individuals are frequently under some religious delusion, which may be quite innocent in itself, either as it relates to the individual, or the public at large. One man may fancy himself to be of divine origin; another may be in constant communication with angels and holy spirits; and a young lady may innocently enough employ herself from morn-

ing to night in writing love-letters to angels; and yet a medical man would not be entitled to send them to a mad-house, unless public decency were offended: indeed, were it otherwise, the one half of the world might be for committing the other, who think differently on religious matters. Perhaps there are more religious than any other class of lunatics; and at present, there are a dozen or two of young ladies, who are too well fed, and have too little to do, praying by detachments, night and day, for the conversion of some of the highest, the most pious, and the most rational members of the Scotch church. There are others who, in the wildness of their diseased imaginations, fancy, that a proclamation for a universal pardon, alike to saint and sinner, has been received from heaven; and that a power has been imparted to them, in virtue of prayer, to perform miracles; in short, that they can make the lame to walk, renew the lungs of consumptive patients, and even raise the dead! Yet I suppose they consider themselves perfectly sane, and would be very much surprised to find themselves safely lodged within the precincts of an asylum; but it would not be difficult to shew, that they, as well as the followers of Joanna Southcote, and sundry other wild enthusiasts, are at least not very wise, and that a few weeks' work on the tread-mill, with scanty fare, would probably cure them of such fantasies.

The second point of importance is, should an insane person be sent to a proper establishment, or treated at home? After considerable experience in the treatment of insanity, I am disposed most unhesitatingly to declare, that removal from his own house, if not actually necessary, is the step best calculated to produce a speedy recovery, and more particularly if he be the head of a family, it being the most difficult thing to gain a sufficient degree of authority over a person in the house where he has been always obeyed. But I entertain great abhorrence at the idea of consigning any person to a private mad-house, where the money received for board and medical attendance is an object to the individuals who keep the establishment. In a case where the liberty of the subject, and the peace and happiness of so many individuals are at stake, should not private mad-houses be put

down by law? Although, then, a decided preference should be given to a public establishment, yet I am not prepared to say that they might not be improved; and if an investigation were instituted by Parliament, it would be discovered, that the duties which the directors of such institutions take upon themselves, are generally very slovenly, and sometimes very imperfectly performed. It would also be seen, that secrecy is not sufficiently observed, and that in some instances the medical appointments are mere jobs, every interest being sacrificed to gratify the caprice of some idiots, who ought to be patients instead of directors.

In the treatment, more is to be done by moral management, and by attending to the bowels, to the regimen, and to the temperature of the patient's body, than by heroic remedies, such as bleeding and blistering, exhibiting digitalis, and persevering in the use of strong drastic purges. As to general bleeding, it is necessary only when there is considerable plethora, vascular excitement, determination of blood towards the head, or more especially signs of inflammatory action in the brain; but local bleeding by cupping, should, if possible, be substituted, unless the balance of the circulation be much disturbed, when the lancet must be used. In a considerable number of cases, shaving the head, and the occasional application of cold, by pouring water in a small stream upon it for a considerable length of time, will frequently diminish excitement, and produce tranquillity, without having recourse to bleeding.

Opiates have been so often found injurious, that by some they are laid aside entirely; but I imagine this has happened from their indiscriminate employment, as well as from the insufficiency of the doses. I have seen the best effects from the exhibition of eighty, and even a hundred drops of laudanum, repeated every third hour, in cases where there were great irritability and want of sleep, and where there were no marks of organic disease within the brain. Blisters are rarely serviceable, and they oftentimes irritate a patient till he becomes unmanageable. Large doses of tartar-emetic will sometimes be found useful, having a very powerful effect in controuling the circulation, and keeping the bowels open.

The moral treatment consists in obtaining complete power over the mind of the sufferer, if possible, without the applica-

tion of any violent means. This can be affected only by studying his character, avoiding argumentative conversation, and keeping a sharp look-out, that he may have neither excuse nor opportunity to aggress. In short, a soothing system, and frequent acts of indulgence, as rewards for quietness and good conduct, are highly conducive to recovery. The high and ferocious maniac, however, requires to be secured during the night, by means of straps and strong gloves, which are fastened in a peculiar way, so that the patient cannot do himself or his keepers any injury; and during the day, to be confined in a large well-cushioned chair, which is fixed to the floor; and even here the soothing system is of decided advantage. The superintendents and keepers should possess great prudence, and imperturbable tempers; and are never, on any account, to be allowed to exercise any harshness, either in action or expression, towards a patient. In many establishments, there is a chair fixed in a box, very much like a sentry-box, which is whirled round with great rapidity by machinery; and I am told, that it has been found of great service in those cases where great violence exists with a considerable share of reason. The remedy has to be used only once; subsequently, the mere threat of it is quite sufficient to make the patient controul himself. Every ward should be heated with warm air, which will render fires in the apartments unnecessary. Comfortable clothing, and preserving warm feet, ought to be strictly attended to. Unless a patient have fever, his food should be substantial, and at the same time nourishing; a dinner of good roasted or boiled fresh meat should be allowed. A proper share of exercise in the open air is highly necessary; and nothing is more beneficial than a minute attention to a proper classification of patients; yet I fear, from negligence and laziness, this is either much neglected, or very imperfectly and irregularly performed. In a receptacle for the insane, this last should be insisted on as a daily measure. The number of directors should be increased in each establishment, and two should be compelled, under a severe penalty, to visit the insane every day at the hour of dinner, to satisfy themselves with respect to the food when presented to the patients, both as to its quantity and quality, and to see that an individual with some

returning sense, is not horrified by the presence of others in a much worse state than himself. Some means should also be contrived to allow the visits of friends as often as may be wished, without the patient's being aware of their presence.

It often becomes a difficult matter to decide when a patient is in a fit state to be discharged, and return to his friends. If I might be allowed to insist upon any particular line of conduct, it would be, not to dismiss a patient till he has been for at least two months without shewing any aberration of mind; and it is even justifiable, before his dismissal is determined on, to converse with him, touching the chord of his previous illusion. This should be done by the medical attendant, whose responsibility is great, who should be well remunerated, and be chosen as much for his honourable and benevolent feeling, probity, and straight-forwardness, as for his zeal and talents. It would be perhaps an additional safeguard if this examination were conducted in the presence of a magistrate.

In addition to these remarks respecting the management of the insane, the following valuable observations by Dr Combe are annexed. "Besides what you notice with regard of treatment, every thing demonstrates that *employment* of the patient is not sufficiently studied. The brain loses its health from vacuity of mind, and yet we shut up in scores, in perfect idleness, men who, when well, were accustomed to a bustling and active life, and whom, at any time of their lives, idleness would have driven mad. Manual labour and occupation are also of immense consequence, and the moral influence of keepers and superintendents acquainted with human nature, and interested in their avocation, is prodigious, in producing quietude, and accelerating recovery, just from giving to the brain that healthy exercise which it requires. Lunatics retain a good deal of reason even in their worst condition, and hence are more accessible to the influence of reason and example than might be supposed. In every point of view, it is best to act towards them with the same consistency, firm honesty, and good feeling, as if they were quite in possession of themselves. They are quick in detecting deceit, and when once deceived, they never give confidence again. I mention this, because I differ from what ——— once said to you on this subject, in having

flattered D——'s predominating vanity, and led him by it, and from what you said in accordance with his views. My experience says, never advance a word which you cannot conscientiously stick by when the patient recovers, and you will retain your ascendancy. Do not thwart his delusion, but neither give it any countenance. Our friend is now satisfied I am right in this, and I have decidedly proved it in practice. Remove all provocatives, and allusions to the morbid feeling or idea, and exercise the rest as much as possible on their own objects.

"In subjects not delicate, and not beyond middle life, I find many who are greatly benefited by cupping, and free and repeated leeching, followed by tepid bathing, and cold to the head while in the bath. Many, of course, do not require depletion, but it may be advantageously used when the usual indications exist. General bleeding I know little of, and do not like it. After the irritability and excitement of the immediate explosion are over, a *great deal* of exercise in the open air seems most useful in diminishing irritability, relieving the head, and procuring *sound* sleep; but if used too soon, it injures. The ordinary principles of pathology ought, in short, to regulate medical treatment, and adapt it to the state of the *individual* patient, for the latter is the only safe and successful plan."

Hypochondriasis.

This disease, when severe, is synonymous with monomania, and might very properly have been comprehended under insanity.

Hypochondriac symptoms affect two classes of individuals: 1. Those whose ailments are only imaginary or functional; and, 2. Those whose complaints are produced by organic disease. The first class of patients embraces the idle, the wicked, the dissipated, and those who are brought up without a profession, who, when left to their own resources, know not how to kill time. The minds of such persons are enervated from a want of due exercise of the faculties they may actually possess, till at last the vital actions become weakened; some of the natural functions, particularly those performed by the stomach and bowels, may be impeded; at which time, should

a friend die, or the history of a disease fall in their way, they will immediately fancy themselves affected with the same disorder. Or they may have a hundred and fifty different complaints, and think they experience a thousand strange sensations and unaccountable feelings, till bodily disease is in the end engrafted on the mental. The organic disease acts upon the mind, producing a state which, to say the least of it, is far from one of sanity. The primary disease may be functional or structural. If the former, the stomach and bowels will, in general, be found to be the parts at fault; and I have sometimes discovered, on dissection, diseased states of the liver, lungs, kidneys, bladder, heart, blood-vessels, and also of the brain and its membranes.

I have been often surprised, while attending hypochondriacs, to hear the animated description they give of their feelings; and as one impression is driven away, another quickly appears in its place. They sometimes declare that they have no appetite, and cannot eat, while they may be in the very act of taking a hearty dinner. In the same way with regard to sleep; according to their own account, they never close an eye night or day, although it is well known that they sleep ten hours out of the twenty-four. Some of them never have any passage from their bowels, although they pass two or three evacuations daily; and on one occasion, a lady told me that she had not had a stool for thirty-eight years, and wished for something to relieve her, although her bowels were quite regular at the time! Now, surely persons cannot be said to be sane in circumstances such as these. Patients affected with hypochondriasis are not always in the same state; perhaps without any assignable cause they become quite well, and again relapse; so that the disease is intermittent and irregular until it acquires some duration and intensity, when it continues, the patient becoming progressively worse.

Causes of Hypochondriasis.—These are to be detected in a more satisfactory manner, by studying the character of the individual, assisted by observing the phrenological developement of the brain. The character of the individual will be found in general to be timid, either from having been weakened by previous bad habits, or in consequence of a total want of

moral courage. Hypochondriasis almost never makes its appearance before the age of puberty, and it should be made extensively known, that it more peculiarly affects aged bachelors and old maids!

Treatment of Hypochondriasis.—Both classes of patients are objects of pity and compassion, and alike demand strict and decisive medical treatment. We should never have any doubts, nor should we attempt to persuade a patient, that he has not the disease which he supposes himself to labour under. Our language should rather be, that we possess a remedy which will most undoubtedly effect a cure; and we should use every exertion to inspire the sufferer with hope. To all patients we should be regular in our visits, and guarded in conversation; but more particularly so when attending a hypochondriac. The bowels should be kept open; the diet should be regulated according to circumstances; and if the patient labour under local disease, it should be treated accordingly; contra-irritation produced by frictions with antimony ointment, will be often found beneficial, as well as the occasional use of warm and cold bathing. Air, exercise, and every kind of innocent amusement, should be strongly urged; and the physician should take the trouble to ascertain that his directions are properly followed; but he must not be at all surprised, or put out of temper, on finding that the patient, if wealthy, is in communication with twenty other medical men.

Delirium Tremens.

Whenever a person has delirium, accompanied by a tremulous motion of the body, or even of a part of the body, he is said in common language to be affected with delirium tremens. Two pathological conditions of the body are often confounded by practitioners, as well as by writers, under this term. The one is delirium, accompanied with trembling, the consequence of the combined influence of irritability, and general functional disease of the nervous system, with positive weakness of the whole frame. In the other, similar symptoms exist, with irritation and increased action, sometimes inflammation in the brain, the patient having a robust, perhaps plethoric, at all events

an unweakened state of body. Both are the consequences of excessive indulgence in strong potations; but a distinction between the two is in general not very difficult, if we can depend upon the history given of the patient's previous habits, by comparing these carefully with the immediate cause of the attack, and the existing symptoms. If we are told that the patient has had many similar attacks, has been long addicted to the excessive use of ardent spirit, and that the immediate cause of his present condition is great excess; if he display no great bodily strength; if his pulse be frequent and weak, his tongue dry and dark-coloured, with a pale subdued countenance, a different line of practice ought to be pursued from that which I would recommend in a patient whose health had been previously unbroken, and who was not habitually addicted to drinking. If such a person as the last mentioned were seized with delirium and trembling after a solitary debauch; if the delirium were furious; the strength greatly increased; the limbs being sometimes spasmodically contracted; the pulse of moderate strength, and not above 100; and particularly if the tongue were moist, depletion must be employed. Whereas in the first case, the hope of recovery must depend upon the judicious and timely exhibition of stimulants. The kind of stimulant should be adapted to the rank of life and habits of the patient; but upon the whole, wine is the best, repeated in the quantity of a small glassful, every half hour in urgent cases, or every hour or second hour according to circumstances; attention must be paid to the bowels, and opiates and blisters used if necessary. A patient labouring under this form of the disease, would in all probability be destroyed by the loss of four ounces of blood.

In the second variety which has been quoted, if the disease have not existed long, a bleeding from the arm, in such quantity as the case requires, will be found highly beneficial; but should the disease have gone on for any length of time, the same objections which were made against bleeding in the former case are equally applicable to this. But instead of stimulating, we must trust to the exhibition of powerful purgatives, shaving the head, and applying cold to it, with sinapisms to the feet, or blisters to the legs. In some instances

local bleeding will be proper, when that from a vein is totally inadmissible. The observations already so frequently and so pointedly made in different parts of this work, with respect to venæsection, and the difference in the results to be expected from that remedy according to the period of the disease, need scarcely be repeated in this place. But it may be again stated, that bleeding is often a doubtful, and sometimes even a dangerous remedy in this affection, when the pulse is exceedingly quick, say 130 or 140, and still more so, if at the same time the tongue be dry and parched; whereas it is at least a comparatively innocent remedy, if the opposite states of the pulse and tongue exist. Considerable caution is also required in exhibiting opiates; if the patient be restless and watchful, an opiate can at least do no harm, and is often of signal service; but if there be a tendency to coma, an opiate will in general prove hurtful.

PART VI.

DISEASES OF THE EYE AND EAR.

CHAP. I.

GENERAL REMARKS ON THE DISEASES OF THE EYE.

The eye is one of the most sensible and delicate organs of the body, and from its situation and function is liable to many accidents and diseases, the nature and treatment of which are now happily much better understood than formerly. It is my intention to avoid noticing the surgical diseases of the eye, and to confine myself entirely to the consideration of those strictly medical, which will include inflammation of the different tissues of which the eye is composed, and the lining membrane of the eye-lids, together with the diseases of the optic nerve.

In the last century, uneducated quacks were chiefly employed in treating diseases of the eyes, which was no doubt owing to the general ignorance which prevailed on the subject. In the present day, we find a class of well-educated men called oculists, who devote their time and attention exclusively to this branch of the profession. There can be no doubt that advantages are gained, both by the profession and the public, from a division of labour; but every individual, whatever particular department he may choose to cultivate and practise, should have previously gone through a good general medical education. Many of the diseases of the eye depend upon a variety of constitutional causes, which must be understood before we can cure or alleviate the diseases which they

produce. It is now generally admitted, that every individual in the profession should be able to treat the diseases of the eye with the same facility with which he can manage those of any other organ. The surgical diseases of the organ of vision are certainly more complicated, requiring a delicacy of hand, and quickness of eye, which many do not possess; but those which fall under the care of the physician are similar to diseases of other parts of the body, though at first perhaps somewhat more difficult to understand and treat. Students of medicine of the present day will have themselves to blame, if they undertake the responsibility of general practice without a competent knowledge of this subject, as at every school of medicine in this country, an establishment especially devoted to diseases of the eye exists, superintended by medical men of eminence in this department. I am happy to have this opportunity of speaking in terms of high commendation of the arrangements of the Eye Dispensary of Edinburgh, under the able management of Drs Robertson and Farquharson.

The Germans are exceedingly and needlessly minute in their classification of diseases of the eye. According to Plenck's arrangement, there are one hundred and nineteen genera, and very nearly six hundred species. Dr Mason Good, in noticing this division, observes: "A regard to *our own ease* may dispose us rather to take with the abbreviating spirit of Dr Cullen, than the discursive genius of Dr Plenck." I think, that a regard not only to our own ease, but to the ease, comfort, and safety of our patient, ought to induce us to do so; as it is scarcely to be believed, that any practical man can carry in his head the one-hundredth part of the distinctions of the Germans.

Inflammation of the eye may be divided into external ophthalmia, or inflammation of the conjunctiva in its principal modifications; and deep-seated ophthalmia, or inflammation of the other tunics, including the disease called amaurosis, which, although not always, is sometimes produced by inflammation. These are subdivided into acute and chronic inflammation of the part affected.

I shall now give a general but brief account of the phenomena of inflammation of the eye, its causes, and treatment,

before proceeding to consider the individual diseases. The general symptoms differ little from those of inflammation in other parts of the body, and only in as much as they undergo modifications from the peculiar structure and functions of the organ. Inflammation of the eye may be confined to one tunic, whence it often extends to surrounding tissues, and may spread in this manner till the whole organ is affected; or it may attack the whole eye-ball at once, although this must be an extremely rare occurrence. The disease may be confined to one eye, or may affect both simultaneously; or first one eye, then the other, may be affected. Almost universally the disease attacks the same tissue in each eye, whether it be the iris, the conjunctiva, or the retina. Inflammation affecting one particular tissue of the eye, whether it be of an acute or chronic character, if not invariably, is generally characterized by some peculiar symptom or appearance; thus, inflammation of the conjunctiva may be readily distinguished from inflammation of the retina, and both from that of the iris.

Symptoms of Inflammation of the Eye.—These may be divided into local and constitutional. The local symptoms are first a sensation which would be produced by a grain of sand in the eye, followed by a sense of heat, and pain in the eye-ball, increased secretion of tears, intolerance of light, and a feeling as if the eye-ball were swollen. On making an examination, a net-work of vessels transmitting red blood is seen, although in a state of health they contain a colourless fluid. If all these symptoms be present, and continue for any length of time, no individual, however uninformed, can be in doubt respecting the existence of inflammation. But it often happens, that very severe inflammation of the internal parts of the eye may be going on without any external redness or unusual vascularity; and cases occur, which terminate in the total destruction of vision, unacompanied by much pain. Thus, Dr Robertson was called to a case some years ago, in which both eyes were completely disorganized within twenty-four hours from the commencement of the inflammation, and yet the patient complained but slightly of pain. Intolerance of light is not always complained of in an external ophthalmia, at least at the beginning of the attack, in proportion to the intensity of

the inflammation, but it is a prominent symptom of inflammation of the internal parts of the eye. Instead of an increased flow of tears, a preternatural dryness of the eye may take place, particularly when the diseased action is intense. Swelling of the eye-lids takes place when the inflammation attacks their lining membrane; they then sometimes become very much tumified, which is by no means an unfavourable symptom.

The observations which have been so often repeated in this work respecting other inflammatory affections, viz. that symptoms vary much according to constitution, and that an important organ may be undergoing considerable changes of structure, without producing the regular train of symptoms, either as to number or intensity, apply equally to ophthalmia.

Severe inflammation of the eye is frequently attended by headache, nausea, prostration of strength, constipation, and febrile symptoms. When the internal coats of the eye-ball are inflamed, there are generally more pain, headache, and fever, than in conjunctival inflammation. These are termed the constitutional symptoms.

Causes of Inflammation of the Eye.—These causes are numerous and diversified; few can be said to be peculiar, the great majority being such as are well known to occasion disease in other organs of the body. They may be divided into two classes:—1. External or local; 2. Internal or constitutional. Among the first are included sand, dust, lime, small insects, the irritation produced by tumours growing within the eye-lids, and inversion of the eye-lashes. Of these, the application of lime is the most injurious, from its well known property of destroying the vitality and texture of animal tissues. In all of these cases, a very minute examination of the eye should be made. Morgagni relates the case of Thomas Mangelli, a relative of his own, who had a dangerous and protracted ophthalmia. His physicians and surgeons believed that an ulcer had formed in the cornea from inflammation, and a variety of internal as well as external measures were adopted, but without the least advantage, until one of the surgeons discovered the wing of a small fly in the bottom of what had previously been considered an ulcer. The patient recollected that an insect had flown into the eye a little before the in-

flammation commenced, and that it had been killed by the application of his hand; the wing had remained closely applied to the cornea, where it brought on inflammation, and the surrounding swelling represented the lips of a small ulcer. Soon after the foreign body was removed, the eye recovered.

Acid fumes and vapours are fruitful sources of ophthalmia; as also the application of gonorrhœal virus, the discharge from a syphilitic ulcer, or, indeed, acrid matter of any sort. These are powerfully aided by intemperance. There can be no doubt of the influence of climate in producing inflammation of the eye: the colder regions of the world are comparatively exempt from these diseases, while they are frequent and peculiarly severe in warm countries. Many writers have accounted for this circumstance, by attributing it to heat, light, and dust. It cannot be disputed, that any sudden exposure of the eyes to great heat or light is very hurtful to vision; and under all circumstances, long continued exposure without intermission to light and heat, even when neither are very intense, must be injurious. Egypt appears to be the country which of all others is most favourable to the production of ophthalmia. The English and French troops employed in that country in 1801, were harassed by the general prevalence of the disease; and in the subsequent expedition the English troops were equally affected. Nevertheless I am inclined to believe that these causes are very much overrated, and that sudden atmospheric changes, and the disgraceful intemperance of British troops, have far more influence in producing inflammation of the eyes, not only in warm climates, but in our own, than is generally admitted. It is not uncommon for ophthalmia to appear like an epidemic in this country during the spring and autumn months; and it has been remarked to take place in seasons when there were considerable and sudden changes from heat to cold, more particularly if attended by moisture. In warm climates these vicissitudes are more severely felt by the constitution. It will not require any laboured argument to shew that these causes affect the eye by producing alterations in the balance of the circulation, and not so much in consequence of any direct effect on the eye itself. It is but fair to mention,

however, that I have myself experienced considerable annoyance from the effect of light in warm climates, but not so much from the sun's rays falling upon the eye, as from the reflection produced by white sandy roads and white-washed houses, the sensation being quickly removed upon getting into the shade, or walking upon grass.

Among the constitutional causes may be enumerated general plethora, disordered state of the bowels, suppression of any discharge which had previously existed for a considerable time, including the constitutional discharges peculiar to the female, dentition, general chronic disease of the mucous membranes, the diseased state called scrofula, acute and chronic diseases of the skin, the retrocession or metastasis of inflammation to the eye during the progress of gout and rheumatism.

Some of the most severe and intractable diseases of the eye take place during the decline of small-pox, scarlatina, measles, and other diseases of the same class, and constitute one of the numerous evils commonly denominated the "dregs" of these diseases.

Treatment of Inflammation of the Eye.—After the sketches which have been given of the symptoms and causes of inflammation of the eye, it is necessary in this place to give a very short account of the remedial means; but it must be premised, that some remedies are applicable to inflammation of one tissue, and some to that of another. Inflammation of the *iris* may be adduced as an example, in which the action of mercury is peculiarly beneficial. The treatment must vary also with the cause of the disease: if it be produced by acrid vapour, by the damp or exposed situation of the residence of the individual, or by particles of dust engendered during a person's trade or occupation, removal from the cause must in general be insisted on, before we can promise success. If any foreign body be lodged in the eye, it must be extracted: and this frequently requires some nicety, if it be imbedded in the coats of the eye, or in the cornea. Foreign bodies, however, most frequently lodge under the superior palpebra, and when their existence is suspected, the eye-lid should be completely everted. Cases are sometimes met with, particularly of slight inflammation of the *conjunctiva*, in which a spontaneous cure takes

place ; but as such a termination is doubtful, and always slow, we ought to pursue the proper course of treatment. Many cases yield to the application of warm vapour, warm anodyne fomentations, or astringent washes. These simple remedies, together with due attention to the bowels, and confinement to an apartment moderately lighted, will often have the effect of subduing the inflammation. But in severer cases of external inflammation of the eye, and in all deep-seated inflammations of that organ, more powerful measures must be used. Of these, general bleeding stands the foremost, and is more particularly indicated when the symptoms of inflammation run high,—when the eye cannot bear a moderate light,—and when there is a darting pain through the head. The indication is still more obvious, if there be fever with a hard pulse ; and more particularly still if the patient be plethoric. The quantity of blood drawn should be proportioned to the urgency of the symptoms, the age, peculiarities of constitution, and habits of the patient. The importance of general bleeding in many cases of ophthalmia, has been long known to the profession ; but like most of the potent remedies employed for the cure of this and other diseases, it has sometimes been held in great estimation, and at others sadly decried. It is now above thirty years since the disease called the Egyptian ophthalmia created such ravages in the British army, having the double effect of crippling its exertions, and entailing a heavy expense upon the nation, in the shape of pensions to soldiers who had lost their sight ; and when I first entered the army, in the early part of the year 1808, I soon observed sufficient to convince me, that the bad success was owing to injudicious treatment, particularly relating to four most essential points :—1. The older military surgeons, upon whom the treatment devolved, did not seem to be acquainted with the different seats of the inflammation. I never saw any distinction made by one old surgeon, whose wisdom and knowledge were generally admitted and highly extolled, between inflammation of the conjunctiva and that of the iris ; 2. It was matter of surprise to find that eyes were lost in the course of a day or two, when the symptoms were apparently mild, and they seemed to expect to meet with a severe and rapid disease only when there were violent

symptoms, and the chief symptom they depended upon was pain; 3. They appeared to be unable to discriminate between acute and chronic inflammation, which often led them to apply local stimulants most injudiciously; 4. A great deal of the bad success was owing to a systematic plan of taking from all subjects, whether old or young, weak or strong, exsanguined or plethoric, the precise quantity of twelve or sixteen ounces of blood. While acting under an old surgeon, the plan of treatment ordered to be pursued, when a man came into hospital, was,—"Bleed him, Sir, to 16 ounces, and give him salts." If the patient happened to be better at the next day's visit, an order was given to apply a stimulant, generally the *vinum opii*. On the following day, if he were worse, the order was,—"Bleed him again, Sir;" and this alternation of practice,—bleeding one day only to weaken the system, without making any decided impression on the disease, and applying local stimulants the next, before the acute inflammation was subdued,—appeared a most decided error in the treatment. So strong was the impression made on my mind, that one day three men were received into hospital, whom I was desired to bleed, and not considering, or perhaps disregarding the consequences of deviating from the regular plan, I bled each of them to syncope, which required the abstraction of from 25 to 35 ounces of blood. The men made rapid recoveries; but the transaction would have cost me my commission, had I not had powerful friends at court.

I knew another surgeon, who, although he used to bleed in cases of ophthalmia, placed his chief dependence on Dover's powder. To shew how much the Government was alarmed for the state of the army, it may be mentioned, that a male and female quack were hired to take charge of the cases in a certain Military Hospital; but, as might have been expected, their mysteries and mummeries failed altogether in checking the ravages of the disease.

On a subsequent occasion, a medical gentleman joined the army with high pretensions as an oculist. He introduced the practice of everting the eye-lids, which was done in all cases, for the purpose of applying stimulants; and I attributed the loss of a great number of eyes to the indiscriminate employ-

ment of this operation, together with not distinguishing the difference between acute and chronic inflammation, as well as between superficial and deep-seated inflammation of the eye.

One bleeding will in general suffice, but it should be carried far enough to affect the constitution. Drawing blood from the temporal artery has been strongly recommended by many. I have seen it often practised, but was never sensible of any superior advantage derived from this method; and it may be mentioned, that some practitioners of reputation consider it rather injurious. The application of leeches is the most gentle method of taking blood from the vessels in the neighbourhood of the eye; they may be placed either upon the forehead, the temple, or the cheek immediately below the eye. Some object to this means, because the leech-bites occasionally produce considerable swelling, and inflammation of the eye-lids, now and then assuming an erysipelatous character; but it should be recollected, that this will only happen in cases where there is a bad habit of body, in which circumstance their application may be avoided. Cupping the neck may be had recourse to, either when leeches cannot be obtained, or when it may not be convenient or proper to employ them. In conjunctival ophthalmia, particularly when the lining membrane of the palpebra is vascular, the application of the scarificator to the everted lid will be found very beneficial, and is a speedy method of taking a considerable quantity of blood from the part affected; but it is only to be had recourse to in certain cases hereafter to be noticed. A modification of this last practice has been recommended by Mr Crampton, (3d vol. Dub. Hosp. Report,) which is, to apply leeches to the everted mucous membrane of the lower palpebra.

The beneficial effects of the most judicious and copious abstractions of blood will, however, soon be lost, unless followed by other important means, such as, the keeping up a moderately brisk discharge from the bowels, and the use of antimony. Blisters applied either to the neck, or behind the ears, are often serviceable; and in cases of chronic inflammation of the conjunctiva, when the mucous membrane of the intestinal canal is in a state of great irritation, I have found it very beneficial to apply the tartar-emetic ointment to the abdomen,

alternately with leeches to the epigastric region : it is in such cases that the frequent use of the warm bath proves beneficial.

In acute and even sub-acute inflammation of the eye, the employment of the antiphlogistic regimen is indispensably necessary ; but I apprehend that practitioners too frequently run into an extreme, by persevering in the use of slops and low diet for too long a period, to the injury of the functions of the stomach.

With respect to local applications, some practitioners have great faith in cold lotions of different kinds, and others in warm fomentations, consisting merely of warm water, or its vapour, a decoction of chamomile flowers, or of poppy-heads. Whether the applications are to be warm or cold may be safely left to the feelings of the patient, although the former appear in a majority of instances to be the most soothing. Poultices are used by many, but they are not so serviceable as fomentations ; and if there be any tenderness, it is increased by the weight. In pustular ophthalmia, as well as in chronic inflammation of the conjunctiva and cornea, stimulants are most conducive to the cure, and perhaps the best is the *vinum opii*. In such conditions, astringent washes are also used in the proportion of one or two grains of the *acetate of lead*, or *sulphate of zinc*, or from one to seven or eight grains of the *sulphate of alumina*, to the ounce of water. A solution of the *nitrate of silver* is also employed in different conditions of the eye, as in chronic inflammation of the conjunctiva, and inner membrane of the eye-lids, as well as in ulceration of the cornea. Emetics have occasionally been found serviceable in some long-standing cases of conjunctival ophthalmia.

Experience has proved that the action of mercury is almost indispensable in inflammation of the iris ; but it is by no means to be depended upon, to the exclusion of general and local bleedings.

Notwithstanding the general opinion which prevails against the administration of opiates in the diseases under consideration, I would strongly recommend them in cases where there are great pain and want of sleep, after the employment of proper depletion. The dose must be proportioned to the urgency of the pain, as well as to the degree of constitutional irrita-

tion; in severe cases, I have given, with benefit, 60 drops of laudanum, or 30 of Battley's sedative solution; but in either case the dose should be repeated, with half the quantity, in the course of two or three hours, if necessary.

So long ago as the year 1807, Dr Wardrop recommended the evacuation of a part of the aqueous humour, by making a puncture in the cornea, in cases of very violent inflammation of the eye-ball, when the pain is intense, the eye prominent, and the cornea slightly opaque; and more particularly when the case appears to resist other treatment. I cannot speak of this operation from experience; but it appears to have been performed in a few instances with benefit.

CHAP. II.

INFLAMMATION OF THE CONJUNCTIVA.

1. SIMPLE inflammation of the external covering of the eye, including what is termed by authors ophthalmia mitior et gravior; 2. Simple Catarrhal Ophthalmia; 3. Purulent Ophthalmia, the description of which will be drawn from the disease as it occurs in infancy; 4. Pustular Ophthalmia.

1. *Simple Inflammation of the external covering of the Eye.*—The conjunctiva, from its situation, is of all parts of the eye most liable to inflammation. In the natural state, it is rare to see vessels carrying red blood, but on the slightest irritation the vessels of this membrane become injected. It is only in the most intense inflammation of some days continuance, that we see vessels on the surface of the cornea.

Symptoms of Simple Inflammation, &c.—A sensation of itching takes place, sooner or later succeeded by pain, resembling that which is known to be produced by sand or dust when applied to the eye; redness, heat, tension, and throbbing follow, aggravated when the eye is moved, and upon the admission of light. An increased flow of tears is observed, sometimes scalding the cheek, or an unusual dryness of the eye from suppression of tears, which last adds greatly to the pain. In severe cases, the pain shoots from the eye-ball, as it were through the head, or affects the scalp on the forehead over the affected eye. In some instances, there are febrile symptoms, with a full, strong, bounding, or hard pulse, generally preceded by rigors or slight chilliness. If the symptoms are

mild, the disease is called *ophthalmia mitior;* if severe, *ophthalmia gravior.*

On examining the eye in the acute stage of the disease, the vessels are observed to be superficial and distinct, running in straight lines, leaving the intervening spaces of a slight pinkish colour; and when the smaller branches are also well injected with red blood, the conjunctiva has a uniform red appearance; whereas, when the disease is chronic, the vessels become tortuous in their course, assume a purple colour, and are capable of being rolled about from the looseness of the connecting cellular tissue. We judge also of the change in the character of the inflammation by the cessation of the severe throbbing pain, and by the greater tolerance of light. In some cases of the description now under consideration, as well as in those of the affection which has been denominated *purulent ophthalmia*, the conjunctiva becomes swollen, having a red, granular, somewhat fungous appearance, and considerably elevated above the cornea; this state is called *chemosis*, and is frequently confounded with ecchymosis, which also takes place occasionally, not only in chronic, but in acute inflammation of the eye. Chemosis is occasioned by thickening and vascularity of the conjunctiva, with an œdematous state of the subjacent cellular tissue. We see on some occasions also an accompanying œdema of the eye-lids, which become much swollen, and occasionally a red fungous state of their lining membrane takes place. In these circumstances, there is some puriform secretion.

Treatment of Simple Inflammation, &c.—In the milder forms of the disease, general bleeding is unnecessary; but if the complaint do not yield to other remedies, it would be wrong to delay opening a vein, particularly if the pulse be hard, or if there be much excitement in the system. In severe cases, one prompt and copious bleeding will be necessary, followed by the application of leeches, fomentations, strong purgatives, the solution of tartar-emetic, and blisters, as the urgency of the symptoms may require. It is important to consider what the circumstances are which we have to dread;—puriform effusion into the cornea, together with opacity, thickening, and ulceration; and the extension of the inflammation to other

tissues. Chronic inflammation of the conjunctiva may take place in two different circumstances, viz. either as a consequence of previous acute disease, or as a slow inactive inflammation. In either of these cases, the eye has the appearance formerly described; and the practice which I would recommend, is to pay more attention than is generally done to the constitution; the condition of the mucous membrane of the stomach and bowels should be carefully investigated in the manner so fully pointed out in the first volume. In chronic inflammation, it may sometimes be found of great service to scarify the eye-lids, if there is much vascular turgescence of their lining membrane; astringent and stimulating washes must be had recourse to; it is in these cases that the solution of nitrate of silver is found useful, together with the wine of opium, and an occasional blister. It has been recommended to divide the trunks of the small vessels just before they enter the cornea, when there is any tendency to opacity, and when red vessels are seen on that part; and although it may be beneficial in some cases, yet I have seen it injurious in many, by producing additional irritation.

Simple Catarrhal Ophthalmia.

The particular affection which I wish to denote under this term, is one of very common occurrence in this country, being the effect of sudden alternations from heat to cold; it is in fact called by the vulgar, "a cold in the eye," and generally speaking, is to be considered as a mild description of purulent ophthalmia, which disease, in its more aggravated form, is known by the appellation, *Egyptian ophthalmia*—occurring after the application of gonorrhœal virus to the eye, *gonorrhœal ophthalmia*—and taking place in infants, *infantile purulent ophthalmia*. They are all the same disease, requiring the same treatment, modified by the patient's age and peculiarity of constitution, and by the urgency of the case.

Symptoms of Simple Catarrhal Ophthalmia.—After exposure to cold, soreness of the eye is complained of, either preceded or accompanied by chillness, and a feeling of general uneasiness, with lachrymal discharge, sneezing, and sometimes aching pains in the bones, and some degree of fever. It is a

slight inflammatory affection of the conjunctiva; but the inflammation is in some cases so very great as to destroy the eye. In addition to pain, intolerance of light, and the other symptoms described in the last section, we find a puriform discharge, and some swelling of the eye-lids. The eye-lids, though frequently washed, quickly become glued together by the drying of the matter, so that, in making examinations, as well as in cleaning the eye, great mischief is frequently done by forcibly opening the lids, and thereby producing additional inflammation. After the disease is a little advanced, the eye, upon examination, will sometimes be found in a state of chemosis, and we should make at least one daily inspection to ascertain the state of the cornea. If there be no opacity or dimness of the cornea, and no vascularity or ulceration on its surface, the case may be regarded as doing well; but should any of these circumstances be observed, the loss of vision may be dreaded.

Treatment of Simple Catarrhal Ophthalmia.—The same general plan of treatment as recommended in simple inflammation of the conjunctiva should be had recourse to. Attention must be paid to discover when the disease has passed into the chronic stage, that we may have recourse to remedies of an astringent nature; care should be taken to keep a small piece of linen twice folded constantly applied wet to the eyes; at all events the eyes should be well soaked with some tepid fluid, before any attempt is made to separate the palpebræ. I shall have to speak hereafter of the proper plan of treatment when ulceration of the cornea takes place; I shall now only further mention, that the inner membrane of the eye-lids is frequently left, at the termination of the disease, in a soft, swollen, spongy condition. Should the ordinary astringents fail, the scissors of the surgeon, or what perhaps answers fully better, the application of a piece of lunar caustic, may be used once every third day, taking care to evert the eye-lid completely, and to bathe the part with a little milk the moment after the caustic has passed over its surface; this renders it innocent to other parts of the eye. In the acute stage, the warm bath and antimony will be found peculiarly serviceable, as well as repeated doses of Dover's powder.

In cases where the introduction of syphilitic virus into the eye is suspected, it must be left to the discretion of the practitioner whether to use mercury or not. Perhaps it ought not to be given in the first instance; but in the case of syphilitic, gonorrhœal, or any other acrid matter producing inflammation, the knowledge of the fact should lead us to watch the progress of the case more anxiously, and be ready to apply the most potent remedies speedily, should they be necessary from the extent and intensity of the inflammation. An interesting case may be mentioned, which terminated very fortunately:—A young man came to the hospital with violent inflammation in one eye, attended with slight purulent discharge; he complained of excruciating pain both in the eye and head, and a large ulcer was discovered on the cornea. Upon examination, a purulent discharge was observed coming from the urethra, although he had previously denied the existence of gonorrhœa.

Notwithstanding the advanced stage of the disease, I instantly resolved to open a vein, as he was stout and plethoric, and as his pulse was strong and hard. There was little probability of saving the eye, and it was fully expected that the contents of the eye-ball would escape in the course of twenty-four hours; but it was necessary to mitigate his sufferings, which he described to be agonizing. The blood was allowed to flow till the approach of syncope. Slight epileptic convulsions followed, which went off immediately upon his being laid down on the floor; he was now in an extreme state of weakness, and was threatened with a return of the convulsions upon making the least exertion, as well as when he was raised for the purpose of being placed in bed. When in this state, it was a matter of surprise to me, to find scarcely a trace of one vessel upon the eye, which had a few minutes before been exceedingly vascular, and the ulcer on the cornea already appeared as if it had received a death-blow. The blood was accurately weighed, and the quantity found to be fifty-six ounces. In a day or two a slough separated, and the ulceration was found to have extended throughout the whole depth of the cornea; the only part which remained was its lining membrane, which was pushed out by the aqueous humour,

forming an appearance like a hernia. From this time the healing process continued; the cicatrix which afterwards formed, at first interfered with the sphere of vision, but the patient could see all objects above him; gradually, however, the cicatrix diminished in size, a very slight speck is left on the lower part of the cornea, and vision is now quite perfect.

Purulent Ophthalmia of Infants.

The disease of which I have now to treat, is an inflammation of the *tunica conjunctiva* of the eye; occasionally attacking children soon after birth, and frequently, when unopposed by proper means, rapidly destroying the structure of the eye, by producing alteration of texture of the cornea, and sometimes, though rarely, by extending to, and injuring the deep-seated parts of the eye. It is now many years since this disease first attracted the notice of medical men, but we had no good description of it till Mr Ware, a celebrated ophthalmic writer and practitioner, published an account of it, and he was soon followed by several Continental writers, particularly by Reilius and Schmidt in Germany.

The *tunica conjunctiva*, and the reflection of it forming the lining membrane of the eye-lids, has been considered, and I believe very properly, as a mucous membrane. It is the principal seat of the disease, and undergoes a change, when inflamed, analogous to that of other membranes of the same class.

Symptoms of Purulent Ophthalmia.—The date of the attack varies. I have several times seen children born with the disease, and have often detected it on the second day, and it may occur at any subsequent period; but, generally speaking, it takes place before the sixth week, usually during the course of the first fourteen days. It may attack one eye only, but it commonly happens that both eyes are simultaneously affected.

It is often difficult, if not impossible, to write a good description of the symptoms of a disease in infancy, but I shall here record nothing but what I have noted down at the bedside.—A child affected with purulent ophthalmia, is observed to be very restless and fretful, particularly when exposed to light, although it keeps the eye-lids firmly closed; it never

opens them to look about, as infants usually do, who are readily attracted by the light of a candle or the blaze of a fire. At the onset of the disease, a slight redness is first observed on the conjunctiva lining the eye-lids, especially about the inner canthus, attended with a secretion of whitish matter. There are generally observed also some heat of skin, and a foul tongue. The eye-lids soon appear red and swollen, or the eye-lashes are found matted together by a glutinous exudation. Whenever any of these appearances are observed, the eye should be minutely examined, after it has been properly soaked with warm milk and water, so as to soften the matter which seals the lids together. On no account ought the examination to be proceeded in before this preparatory step is fully accomplished, as I have seen great mischief done by nurses and impatient medical men forcing open the eye-lids, thereby occasioning great immediate suffering, and subsequently increasing the inflammation.

I hope to be excused by those medical men who largely indulge in the filthy habit of taking snuff, for urging upon them the necessity of taking care that the fingers employed in opening the eye-lids are clean, and that they keep their noses in such a situation, that none of the noxious herb may fall into the eyes of the poor little sufferers. As the disease proceeds, a discharge of tears mixed with the secretion takes place when the eye-lids are separated, and the itching is so great that the fingers of the child can scarcely be kept away from the eyes ; swelling of the eye-lids soon follows ; the discharge increases in quantity, becomes more puriform, and sometimes so acrid as to excoriate the cheeks.

The inflammation, if it have not already affected that part of the conjunctiva which covers the eye-ball, soon extends to it ; numerous blood-vessels are seen of a bright scarlet colour, sometimes giving the appearance of chemosis ; the quantity of matter is occasionally very great indeed, and when the eye-lids are allowed to be glued together for some time, it collects, producing great distention, and when they are opened, a tea-spoonful or two of puriform matter gushes out. In neglected cases we discover disease in the cornea, perhaps on the first examination, or that it is already destroyed. The external

skin of the eye-lids in some cases becomes affected, being red, swollen, and of a livid colour, particularly when the infant struggles or cries. The inflammation in some instances extends to the lachrymal sac and duct, and lining membrane of the nose, from which a similar puriform fluid is discharged.

As the complaint advances, portions of the cornea put on a dusky appearance, become elevated, and in the course of perhaps twenty-four hours, a process of separation commences. The slough, when thrown off, leaves a ragged ulcer of an ash colour, the bottom of which is coated with a brownish matter. These sloughing ulcers vary in number, generally there is only one, sometimes there are several, and occasionally the whole cornea sloughs at once. As soon as one slough separates, another begins to form, which process goes on, if the disease be not arrested, until the ulcer penetrates into the anterior chamber of the eye, when the aqueous humour is discharged, and the iris pushed through the opening. The ulcer on the cornea may not be disposed to heal, or may enlarge, allowing more and more of the iris to protrude, which in its turn ulcerates; at last it happens in some neglected cases, that the lens and vitreous humour are expelled, and vision is for ever destroyed. In some rare instances, with or without opacity, or ulceration of the cornea, the inflammation extends to the deep-seated parts of the eye, and vision may be destroyed by internal disorganization.

Such is a general outline of this disease in its most malignant form, when allowed to run its course, or when the inflammation is aggravated by improper treatment,—a disease which, when early opposed by proper means, is seldom productive of any bad effects. When the inflammation is arrested at the period that the cornea first begins to slough, opacities or small specks are generally left; but when it advances still further, and the iris is protruded, staphyloma is generally the consequence.

It has been supposed by some authors, that the acrid discharge produces the ulceration of the cornea,—by others, that the cornea begins to ulcerate from within; but I believe the best informed practical men are convinced, that both opinions are erroneous, and that the disorganization of the cornea arises

solely from the violence of the inflammation; and it is highly important to keep this fact in view.

Much irritation and discharge are sometimes kept up for a considerable period by a diseased state of the lining membrane of the eye-lids, which, when examined, present a swollen, spongy, granular appearance, and more or less of a red colour. This state of parts frequently occasions relapses, till at length chronic inflammation steals slowly on some tissue of the eye-ball itself, which ultimately impairs or destroys vision.

Causes of Purulent Ophthalmia of Infants.—These are stated to be various. The most common are cold and damp, exposure to too much light and heat, to which infants are very liable when nursed in the lap, and to smoke or acrid vapours; and I believe it is occasionally produced in consequence of mechanical injury inflicted on the conjunctiva by the child's own nails. Purulent ophthalmia is said, by some, to be produced by the direct application of acrid matter to the eyes of the infant during parturition. This is very probable, if the mother be affected with syphilitic chancres, or gonorrhœal discharge; but on the other hand, I have known many women so diseased, whose children were not attacked by purulent ophthalmia. Others maintain, that it is invariably produced by the peculiar discharge called the *whites;* but experience completely disproves this assertion, for if it were the case, scarcely one new-born babe could, by possibility, escape, as a very large proportion of women are affected with whites during pregnancy, particularly in the latter months.

Treatment of Purulent Ophthalmia of Infants.—Regarding the disease, in severe cases, as one of intense inflammation, the treatment is easily understood. The only difficulties with which practitioners have to contend are, first, to determine whether or not the disease be too far advanced to admit of any hope of success; and secondly, whether or not the inflammation has yet become chronic. With respect to the former, it may be stated, that long standing and most unpromising cases occasionally do well under the active management which is here recommended. We must not allow ourselves to be guided by the number of days the disease has existed, but by the state of the eye itself after minute and careful examina-

tion, comparing that with the constitutional symptoms, together with the strength and peculiarities of the patient. With respect to the second difficulty, some experience is no doubt required. The appearances presented by chronic inflammation, however, have been already fully described, and must be kept in recollection.

It has been already stated, that both eyes are generally simultaneously inflamed, but one eye is found to be more intensely affected than the other; young practitioners must be upon their guard not to fall into a common, but very natural error, of directing their sole attention to that organ which is in the most dangerous condition, to the comparative neglect of the other, which, when subsequently examined, is too often found to be irreparably lost. General bleeding in early infancy is altogether out of the question, therefore we must have recourse to leeching; and most infants stand the effects of the application of two leeches remarkably well, if the draining of blood be not allowed to go on too long. If both eyes be affected, a leech may be put on each temple, within about half an inch of the external canthus of the eye, for when applied too near the part, the loose tissue of the eye-lid becomes swollen, inflamed, and ecchymosed, creating alarm, and an impression in the minds of those most interested, that the abstraction of blood has done harm. This opinion may make them unwilling to repeat the application of the leeches, which should be done, perhaps, every four or six hours, according to the strength of the patient, till the violence of the disease is subdued. The bowels are to be acted upon by two or three smart purgatives repeated at short intervals, such as one grain of calomel combined with two grains of scammony; but subsequently milder means may be had recourse to. It is of great consequence to keep the eyes clean, not because the matter, if allowed to lodge, would injure the cornea, but to prevent it from sealing the lids together. This is best affected by keeping the infant upon its back, while a small piece of wet linen rag is applied to each eye, and a little milk and water dropped occasionally upon the inner canthus. The necessary precautions already mentioned, before any attempt is made to separate the lids, must be carefully observed. I

have seen much mischief done by the incautious and too frequent use of the sponge, as well as by injecting fluids between the eye-lids, an operation which ought never to be confided to a nurse.

With respect to the operation of scarifying the lining membrane of the eye-lids, I formerly had doubts whether it did not occasionally do harm; but experience has taught me, that it is one of the most effectual parts of the treatment, not only in the chronic, but in the acute stage. The scarifications are to be made very slightly, as their edges sometimes suffer from subsequent irritation and inflammation. To procure the full effects of scarifying, the eye-lid should be carefully everted, the child steadily held, and a large quantity of blood allowed to flow before the part is returned; to effect which, the scarificator should have a very fine edge; and instead of wiping the surface with a warm sponge, it should be done with a piece of dry soft linen. Scarifications are also occasionally of great use in the chronic stage, when the part is very vascular; and they are often serviceable after the membrane becomes soft, spongy, and granular.

The light should be excluded from the apartment. In bad or doubtful cases, the state of the cornea should be minutely examined twice a-day, and once when the case is going on well. The warm bath ought to be used morning and evening; the diet should be restricted at this early period of life to the breast-milk. We judge of the effects of the remedies in reducing the disease, partly by the diminution of the constitutional symptoms, and quietness of the infant, and partly by the diminution of the discharge, as well as by the child opening the eyes; but in order to ascertain this last point, it is necessary to watch its motions before light is admitted into the apartment, because the moment this takes place, the eyes will be closed, and the child will forcibly resist their being opened.

An occasional opiate will be found useful in allaying pain and irritation, and producing sleep. One drop of the sedative solution of opium forms a good full dose. The state of chronic inflammation has been already frequently alluded to, but perhaps in the circumstances now under consideration, it is a term

not very happily chosen. After acute inflammation of the eye has subsided, the vessels are left in a gorged state ; the swelling in the surrounding tissues gradually diminishes, leaving the vessels tortuous and loose, the blood contained in them being of a darker colour : the inflammation is destroyed, but the vascularity remains, and the remedies which subdued the previous action will, if continued, rather tend to increase than diminish it. At the same time, I have to urge the remark which was made in the first volume, and which applies with double force to the diseases of such a delicate organ as the eye, viz. that practitioners are too meddlesome, and do not give sufficient credit to the restorative powers which a living organ possesses ; or perhaps, from their own physiological and pathological dimness, they must always be doing something for appearance's sake. I have seen much mischief done by officiousness ; therefore as soon as the inflammation is either nearly or altogether subdued, I follow a passive plan with respect to applications, and content myself with keeping the eye tolerably clean, and the eye-lids unsealed, at the same time that the precautions with respect to light, diet, and state of the bowels, are strictly attended to. In a day or two after convalescence has been established, an astringent, nay, even a stimulating application, may be necessary and serviceable, should the vascularity still exist, or should the mucous membrane be in the fungous granulated state already mentioned. Many use the application as a matter of routine practice, whether these conditions exist or not, so that they often irritate the eye, and produce relapses. Should the fungous granular state resist the use of ordinary means, caustic must be applied, or surgical aid obtained, and the part clipped or cut off,—at first recommended by Reid, who by the date of his work published in 1706, appears to deserve the merit of the originality of the plan, which has been of late years again brought before the profession by Mr Saunders, and claimed as a discovery by Sir William Adams.

Immediately on the decline of the disease, some insist much upon the benefit to be expected from tonic medicines; but whatever may be said in their praise in old worn-out constitutions, there effects in early infancy are very questionable. In

some cases, where considerable debility prevails, particularly where there is a somewhat exsanguined appearance, I find considerable benefit from the occasional exhibition of one, two, or three drops of brandy, mixed with a little milk from the nurse's breast. To many great and pompous practitioners, who depend much upon mystery, this plan may appear vulgar and unscientific,—let such people give a few drops of "Huxham's tincture of bark."

The experienced reader will have remarked, that the effect of blistering has not hitherto been noticed in the treatment; but it was purposely avoided, to be made the subject of my concluding observations. In the general remarks, I have already spoken of the advantages to be derived from the application of a blister to the temples, behind the ears, or to the back of the neck, in inflammation of the eyes: the same benefit may be expected in purulent ophthalmia; but in young infants, the blistered surface is liable to slough, and death will so frequently follow such an occurrence, that I entertain considerable repugnance at applying a blister to a new-born child; and it is impossible I shall ever forget the fright experienced on the last occasion I applied one in purulent ophthalmia. The case was severe; the parents had heard of the good effects of blistering, and I was urged by them to apply one. My objections were honestly mentioned, but they still insisted; and a blister was accordingly applied, with the precaution too of placing a piece of fine gauze between it and the skin; a deep slough took place, and the child made a narrow escape from death.

Pustular Ophthalmia.

This disease appears to be a chronic, or perhaps rather a sub-acute inflammation of the conjunctiva, speedily terminating in the formation of pustules. At the commencement, these pustules have a red or yellowish appearance, slightly elevated, surrounded by a considerable turgescence of vessels, varying very much in size, number, and situation, and sometimes attended by considerable pain; but at other times no inconvenience is complained of, either local or constitutional. It is a disease produced by exposure to cold.

Treatment of Pustular Ophthalmia.—In general this is a very manageable disorder, and is quickly cured by dropping into the eye a little *vinum opii*, or a solution of nitrate of silver twice a-day. But should the pustules be very painful, attended by headache and febrile symptoms, and more particularly, should they be situated upon the cornea, where they sometimes leave ulcerations, more active means should be employed. A number of leeches must be applied, perhaps a vein opened, a few strong purgatives exhibited, and recourse had to the other means which are employed in cases of severe inflammation of the eye. After the acute inflammation is subdued, which we are to judge of by the diminution of the symptoms, the *vinum opii* may be used. Should ulceration take place upon the cornea, it is to be treated in the usual manner. I have been assured by Dr Robertson, that much greater advantage has been derived from the application of blisters behind the ears, or to the nape of the neck, than from any other means.

CHAP. III.

INFLAMMATION OF THE EYE-BALL.

1. INFLAMMATION of the Sclerotic Coat.—2. Inflammation of the Iris.—3. Amaurosis.

1. *Inflammation of the Sclerotic Coat.*—Inflammation of the sclerotic coat is distinguished from that of the conjunctiva by the vessels being of a more pinky hue, by their lying deeper, and by their not being moveable on making the conjunctiva slide upon the sclerotic, by pushing the former membrane from side to side with the finger, the eye-lid being slightly interposed between the finger and the membrane. The pain complained of in this disease is of a rheumatic kind, and more uneasiness is felt in the different motions of the eye-ball; it is also in many instances vicarious with gouty and rheumatic affections of other parts of the body. In such instances, remedies which prove useful in rheumatism and gout are to be used, in addition to those required in simple inflammation. Of these I may mention, that I have seen great advantage result from the exhibition of colchicum, and Dover's powder. In almost every case of iritis, the sclerotic is found to participate in the inflammation.*

* I have thought it unnecessary to treat of inflammation of the sclerotic coat at much length, because it is a disease which rarely takes place unless the inflammation be connected with gout or rheumatism, or have spread from other tissues. Neither shall I treat of inflammation of the choroid coat, although I believe it sometimes occurs uncomplicated. I must therefore refer my readers for more minute information on these subjects, to any of the numerous works upon the Eye, and particularly to the "Compendium of the Diseases of the Human Eye," by Mr Watson of Edinburgh.

2. *Inflammation of the Iris.*—Inflammation of the iris received the denomination of *Iritis* from Dr Schmidt of Vienna, and by that term it is now generally known. The symptoms are of a very violent nature when the inflammation is acute, particularly after it has existed for twenty-four or thirty hours, when the patient's sufferings are often agonizing; severe pain over the eye-brow is rarely wanting, it commonly comes on in paroxysms. The constitutional symptoms are very similar to those which occur in other acute inflammations of the same organ, but there are local appearances which are highly characteristic.

In iritis, vessels are seen running in straight lines towards the cornea beneath the conjunctiva, but they suddenly disappear before they reach the cornea, leaving a whitish zone round it. This appearance is peculiar, and no doubt arises from the vessels passing at this part through the sclerotic to be ramified on the inflamed iris. As soon as the zone appears, the iris loses its proper colour; in some rare cases it becomes distinctly red. Jannin relates a case in which the iris resembled a piece of raw flesh: Beer saw it of a blood-red colour, and Conradi observed it of the same colour after a wound of the eye: Dr Robertson states, in a paper on iritis in the Edinburgh Medical and Surgical Journal, that more than once he has seen spots of a blood-red colour upon its surface.—When the iris changes its colour, it first commences at the pupillary margin, and the colour it assumes when inflamed, is that which would be produced by a mixture of red blood with the natural pigment of the iris. The pupil becomes contracted and irregular, being slightly drawn upwards and inwards. It is also worthy of being mentioned, that the vessels in iritis, as in inflammation of the sclerotic coat, present a peculiar pink colour.

The retina sometimes becomes affected. This is indicated by greater sensibility to the impression of light, deep-seated pain darting through the head, and an appearance of sparks of fire and flashes of light before the eyes. If iritis be not speedily cured, it terminates by the effusion of small masses of lymph, sometimes even of blood, and more rarely by the effusion of puriform matter. The first-mentioned terminations pro-

bably take place when the serous membrane covering the iris is principally affected, the last, when the substance of the iris suffers a high degree of inflammation. The effusion of lymph sometimes produces adhesions between the margin of the iris and the capsule of the lens, by which its motions are completely lost, the pupil subsequently remaining immoveable under every change of light. When the effusion is considerable, it is seen hanging in tufts from the pupillary margin, or stretching in bands across the pupil, and sometimes exists in such quantity as to destroy vision. Occasionally this effused lymph becomes organized, and red vessels may actually be traced by the naked eye. Another termination of the disease is by the formation of an abscess in the substance of the iris itself. Its situation varies, but for the most part is found on or near the pupillary margin. This abscess may terminate in two ways,—by bursting, as most frequently happens, and discharging its contents into the anterior chamber, forming the appearance which is called hypopion,—or, as the disease declines, by the absorption of the matter. In some rare instances it has happened, that ulceration has taken place after the discharge of the matter from the abscess.

In this disease the iris is sometimes pushed forward towards the cornea, assuming somewhat of a conical shape; and occasionally it comes in close contact with the cornea, now and then adhering to it by the pupillary margin, and generally by a single point. It has often been remarked, that when the iris of one eye is affected, the disease frequently attacks the other, and sometimes both eyes are affected simultaneously.

Causes of Iritis.—Cold is no doubt the most frequent cause of iritis; it may be also produced, as has already been stated, by the extension of inflammation from other tissues, as well as by external injuries, and the application of too stimulating remedies for the cure of acute external inflammation. It is alleged by most authors, and is very generally believed, that iritis is most frequently excited by the action of mercury; and it is rather a curious circumstance, that mercury is nevertheless exhibited for the cure of the disease, which it is alleged to have excited. This erroneous impression seems to have originated in the fact, that people, when taking mercury, have

been attacked with iritis. If mercury were a cause of iritis, I ought to have been very familiar with the disease, when the use of mercury was more in fashion than it is in the present day; it ought then to have been a hundred times more frequent than at present; but this is not the case. There can be no doubt, however, that iritis is apt to occur when a person under the influence of mercury, or any other debilitating remedy, has been exposed to cold.

Treatment of Iritis.—At the commencement of the attack, one determined bleeding will do more good in checking the diseased action, than repeated small bleedings. The quantity of blood to be drawn must be determined by the peculiarity of the case, and by the circumstances already so fully mentioned. Subsequently, recourse is to be had to topical bleeding, repeated or not according to circumstances, and blistering. After the violence of the inflammation has been reduced by one general bleeding, our chief dependance is to be placed on the use of mercury, so as to affect the system very rapidly. This is a most important improvement in the treatment of iritis, for which we stand indebted to Dr Farre; but it seems to have been known to Beer and other German oculists, long before its introduction into this country. The plan which I generally follow, is to give a grain of calomel every hour during the day, and five grains at bed-time in a pill, with a grain or two of opium: perhaps Dr Robertson's plan is preferable—to give two mercurial pills every hour, combined with opium, if they affect the bowels with griping or purging. As soon as the system becomes affected with mercury, the patient experiences a very considerable abatement of the pain, as well as of the feeling of fulness and tension of the eye; the sight becomes improved and clearer; the redness diminishes; the iris assumes its natural colour; and the irregular and contracted state of the pupil, as well as the effused lymph, (if any exist,) begin to disappear. I can most conscientiously join those who state that they have often seen cases of iritis in which it was to be regretted that mercury had not been given, and that they never had occasion to regret having prescribed it. When the "*hydrargyrophobia*" was in greater vogue than at present, I knew several surgeons who were *temporarily* affected by it,

till they lost the eyes of patients from iritic inflammation, which they had never done before, when they used mercury. They bitterly regretted having forsaken a plan which they had previously found so generally successful, to adopt another from the false assurances of its *invariable* success. Dr Robertson thinks that mercury can scarcely be praised too highly in this disease, which, when allowed to proceed, more especially after lymph has been effused, too frequently ends in the loss of the finest sense we possess. When once the pupil has been obliterated by the effused lymph, and time has been allowed to glide on, it is next to impossible to restore sight by any remedies we possess, for it becomes so completely organized, that even mercury loses its influence over it. The only resource that remains for the patient is the formation of an artificial pupil, at all times a difficult operation, and in such cases exceedingly apt to be unsuccessful from the recurrence of inflammation of the iris. Indeed, no attempt should be made to form an artificial pupil as long as the slightest susceptibility to inflammation exists; perhaps it ought never to be performed till one or two years after the occurrence of the iritis. In some constitutions, Dr Robertson assures me he has derived great benefit from the use of colchicum, particularly in gouty and rheumatic habits, in which iritis is by no means unfrequent; so great indeed has been his success with this remedy, that he generally tries its effects before having recourse to the mineral. It is only, however, where the disease has not proceeded far, that he has been thus successful with this medicine. When lymph has been effused, we have no resource but mercury. He has tried iodine in such cases, and he thinks with some benefit, but they are not sufficiently numerous and precise, to allow him to give a decided opinion with regard to its utility. He would, however, *recommend its employment, together with that of the colchicum, to those who can see nothing but poisonous qualities in mercury.*

The extract of belladonna is to be rubbed over the eyebrow and forehead, or on the temple or cheek, early in the disease; or a strong solution of it may be inserted between the eye-lids every second or third hour. If no effusion have

taken place, the pupil will be regularly and considerably dilated in the course of a short time; but if adhesions exist between the iris and other parts, the dilatation will, of course, be only partial. It is often necessary, when lymph has been effused, to continue the belladonna for some length of time after other remedies have been discontinued, in order the better to secure the natural functions of the iris. When the inflammation is severe, scarcely any dilatation is occasioned by the belladonna; its use will, however, prevent the pupil becoming still more contracted; but as the inflammation subsides, the advantage resulting from its application becomes more apparent. Some say, that as soon as the dilatation of the pupil is produced, the pain and other symptoms disappear, from which they infer that belladonna is a powerful remedy in destroying the inflammation; but this is not the case, the dilatation merely indicates the cessation or diminution of the inflammation, towards which it does not contribute. The extract of hyosciamus seems to possess the same qualities as that of belladonna; so that, should the one lose its powers, the other may be substituted.

Amaurosis.

The term amaurosis, as at present used, is employed to denote a partial or total loss of vision affecting one or both eyes, arising from various causes which destroy the functions or structure of the optic nerves and retina. The symptoms of amaurosis are so very various, depending upon the cause of the affection, that it is impossible to give a good general description of the progress and termination of the disease in this work, from want of space. I shall therefore be obliged to deviate from the general plan, and commence the subject by describing the causes, as far as they are known, upon which amaurosis depends.

Causes of Amaurosis.—1. Amaurosis may be produced by inflammation of the retina, which is fortunately a rare disease, as the severity of the symptoms occasions great suffering to the patient, and is frequently followed by loss of vision. The inflammatory action may be acute or chronic, a primary or a secondary disease; generally it is a secondary disease, the inflam-

mation spreading from the choroid coat. 2. It may be produced by congestion of the vessels of the retina. 3. By congestion of the vessels of the brain, as in apoplexy. 4. By destruction of those parts of the cerebral mass, upon the healthy state of which vision depends, blindness being well known to be the consequence of many affections of the brain, —as of inflammation with extensive effusion into the ventricles,—inflammation of the substance of the brain,—effusions at the base of the brain,—and tumours pressing on the parts on which vision depends; blows also, on the supra-orbital region, have been known to produce the disease. 5. Narcotics, and the abuse of ardent spirits, are so well known as the causes of temporary loss of vision, that they need not be mentioned. 6. Amaurosis has been known to be occasioned by gastro-intestinal irritation, produced by worms,—by indigestible matters,—and by particular articles of food. During the time of Bonaparte's political influence on the Continent, he prohibited the importation of our colonial produce, and we are told by Professor Beer, that amaurosis became more frequent than it had been formerly, owing to the substitution of vegetable matter, called Chicorée, for coffee. 7. Amaurosis is sometimes vicarious, with cutaneous affections, and with discharges of various kinds. 8. Some cases are on record, where it took place during pregnancy. 9. It is also said to occur during dentition, whether in cousequence of determination of blood to the head, or of disordered state of the stomach and bowels, does not appear.

Symptoms of Amaurosis.—It will be seen from the preceding statement of the various causes of amaurosis, that it is impossible to devote a sufficient number of pages in this work to a minute description of a disease, the symptoms of which must be so very various, occurring under such different circumstances. I may mention, however, that imperfect vision, pain in the eye-ball and in the head, flashes of light and illuminated sparks, dark spots, or other optical illusions, appearing before the eye, accompanied with a preternatural state of the pupil, which is generally dilated and immoveable, announce the existence of this disease. But this state of the pupil is not always present, and when present does not,

exclusively considered, justify the inference that the eye is amaurotic, such states being also produced by the condition of the iris itself and the ciliary nerves, independently of disease of the retina. An irregular, dilated, and commonly immoveable pupil, together with the loss of its jet-black colour, and a tremulous motion of the diseased eye, are the more common appearances of amaurosis. Sometimes amaurosis comes on suddenly; at others gradually and partially, the patient recovering vision entirely, and losing it again and again, till at last it becomes permanently destroyed. Squinting with the diseased eye takes place in amaurosis, but it is not in general permanent; it is only remarked for a short time, after a person looks at another object, it being some time before the muscles of the diseased eye are able to place it in the same direction as the other.

Treatment af Amaurosis.—The remedial agents must vary according to the cause of the disease. It is quite evident that, in the first three causes enumerated,—viz. inflammation of the retina, congestion of the vessels of the retina, and congestion of the vessels of the brain,—depletion by opening a vein, and applying leeches or cupping glasses, more or less actively pursued, must be had recourse to; the chief circumstance of consequence is promptness. In the fourth case, viz. disease of the cerebral parts on which vision depends, as concussion, inflammation, and tumours, I have to remark, that in the two former states of the brain, the treatment necessary for the removal of such diseases must be had recourse to, but in the latter no treatment can have any effect. In the cases produced by narcotics and intoxicating liquors, the amaurosis is only temporary; if the patient recover from their effects, the sight for the most part is restored. In cases depending upon gastro-intestinal irritation, the offending cause must be removed, and the bowels subsequently attended to. Should the disease be connected with cutaneous affections, and with discharges, bleeding may produce relief, but it will be only temporary: the chief dependance must be placed, either on restoring the cutaneous disease—or the discharge, or using means to enable the constitution to do without them, viz. by the occasional application of leeches, but espe-

cially free purging, and a dry unstimulating diet. Occurring during pregnancy, it will in all probability vanish, like many other unpleasant symptoms, after delivery; but a minute investigation should be made, in case the amaurosis should depend upon some of the other causes, when suitable remedies are to be used. If the disease should ever take place during dentition, leeching and purging will be necessary; but lancing the gum will be found to be the most certain remedy.

Nux vomica has been long known to possess considerable powers in paralysis, and since its active principle strychnia has been discovered, it has been found of more service in the same set of affections. Strychnia has been lately tried in France in amaurosis by Lembert, and in some cases with marked benefit. It is evident, however, that as a cure is not to be looked for in paralysis of a limb if its structure be destroyed, or the brain and spinal marrow or principal nerves be diseased past recovery; so neither can we expect to cure amaurosis by strychnia, or any other remedy, if the structure of the eye be destroyed, or if any organic lesions exist in those parts of the brain which are known to be connected with vision. But I have no doubt strychnia will be found serviceable in amaurosis depending upon different functional derangements. It has been lately introduced into this country, and has been used in the Royal Infirmary of Edinburgh by Dr Shortt and Mr Liston. The manner of employing it is to sprinkle a quarter of a grain daily upon a newly blistered surface on the temple, increasing the quantity gradually till some manifest effect is produced. The blister requires to be renewed every third or fourth day; a little smarting is felt on the application of the strychnia, and it has produced erysipelatous inflammation of the part. The constitutional symptoms occasioned by the strychnia, are headache, agitation, and tremors of the whole body; sometimes shooting pains in the eyes, and occasionally cramps and convulsions have followed. When any unpleasant symptom takes place, the dose is to be lessened or intermitted. It is stated, that the best antidote is the application of the acetate of morphia to the blistered part, or the internal use of opium. The reputation of the remedy is likely

to be very much injured by the indiscriminate and empirical use which may be made of it.

The experiment has been tried by Dr Shortt, and with complete success in three cases; but out of five cases treated by Mr Guthrie in the Westminster Ophthalmic Infirmary, in one instance only was evident and considerable benefit observed.

I have lately had occasion to try strychnia in a case of amaurosis in a young gentleman. The disease succeeded a severe blow on the left temple; considerable inflammation of the corresponding eye followed, and vision was destroyed. The organization of the affected eye looked perfect when he fell under my care; the pupil contracted on the application of light; and he could always perceive the difference between night and day. Daily for a week, a quarter of a grain of strychnia was applied upon a recently blistered surface on the temple. No effects were produced except preventing strabismus. During four days, half a grain was used daily. One day half a grain was applied twice; a pricking sensation was felt in the hands and feet: on this occasion, during sleep, he was observed to be affected with slight spasmodic twitches and general startings. For two days after this, half a grain was applied daily, and on the third day a whole grain was used, without any benefit.

CHAP. IV.

DISEASES OF THE EAR.

In this chapter I shall treat, and that shortly, of Otitis and Ottorrhœa.

Otitis.

The symptoms of this affection may be considered under three heads; viz. 1. Common ear-ache; 2. Inflammation and suppuration external to the tympanum; and, 3. Inflammation and suppuration of the internal ear, which are sometimes connected with caries of the petrous portion of the temporal bone, the disease spreading even into the brain.

1. *Ear-ache.*—This affection most frequently occurs during infancy and childhood; but adults are by no means exempt from it. It is a very painful, but not a dangerous disease, and is often ushered in with threatening symptoms, such as violent headache, fits of screaming, flushed face, quick pulse, great restlessness, and sometimes delirium.

2. *Inflammation and suppuration external to the tympanum.*—This disease is generally accompanied by more severe symptoms, and unless the inflammation be immediately checked, is of longer duration. It generally commences with rigors, followed by smart fever, flushing of the face, headache, severe paroxysms of pain darting through the ear, and occasionally some degree of delirium; the ear is tender to the touch, and sometimes pressure cannot be borne. On examination, the inner membrane is found to be swollen, and of a red colour; and in consequence of the swelling and inflammation, more or less deafness is produced, with an occasional hissing sound.

3. *Inflammation of the internal ear.*—The symptoms, both local and constitutional, are generally, although certainly not always, more severe; and it is more important to subdue the inflammation in an early stage. If allowed to go on unmolested, the disease advances rapidly or slowly, according as the inflammatory action is acute or chronic, partial or extensive; the tympanum becomes ulcerated and destroyed, together with the lining membrane of the different parts of the internal ear; the small bones are detached and discharged, and the hearing, on the side affected, becomes irreparably lost. When the bone is affected, the matter has a corresponding appearance and odour; and as the disease advances in the bone, chronic inflammation of the membrane of the brain succeeds, subsequently affecting the brain itself; so that, on dissection, the bone is found to be carious, with serous or purulent effusion, and extensive softening of the base of the brain. In some instances, the disease is very insidious in all its stages, attended with very little pain, and perhaps no discharge from the ear, till at last violent pain suddenly takes place, speedily followed by delirium and coma. In other instances in which the attack is very acute, the painful symptoms cease, and coma gradually steals on; so that the patient may be supposed to be recovering and enjoying sleep, when in fact he is in the very jaws of death. Sometimes spasmodic symptoms, and even convulsions, precede death. All modern writers on the brain notice such cases, and several interesting examples are recorded in Dr Abercrombie's work on the brain, as well as in that of M. Itard, entitled "Traités des Maladies de l'Oreille."

Causes.—All these varieties often take place in the course of ulcerated sore throats, as also during the progress of the exanthematous diseases, where there is for the most part an affection of the throat. The three varieties may also be produced by cold, particularly when applied to the part. Thus I have seen some severe cases, from the ear having been exposed to a small current of air; but a more common cause proceeds from the bad trick which children have of putting pieces of paper, peas, &c. into the external ear. Another frequent cause of the two first varieties, and perhaps occa-

sionally of the third, is the pernicious and disagreeable habit of picking the ears, by means of various well-known contrivances. These complaints sometimes arise from a cutaneous inflammation, generally of an erysipelatous character, which extends into the ear. A collection of indurated wax in the ear, producing irritation and inflammation of the part, the larvæ of insects, and even insects themselves, sometimes produce serious inconvenience and pain.

Treatment.—The treatment of ear-ache is well understood in the nursery; medical men are therefore seldom consulted, unless in severe and obstinate cases, to which the following observations will apply. If the pain and other symptoms be not very severe, and should the inflammation of the inner membrane be slight, fomentations assiduously applied during the day, and a soft light poultice during the night, together with the use of a small quantity of laudanum mingled with oil dropped into the ear, will generally suffice. When the symptoms are severe, and the pain excruciating, I have seen the greatest benefit produced by opening a vein in the arm; but I have only thought it necessary to try this in cases where the symptoms were violent, and the disease of frequent recurrence, and in none of these instances has it ever returned. Besides fomentations, the application of leeches is serviceable, to be repeated according to circumstances, and followed by a blister behind the ear if necessary. It is also found advantageous, before dropping in laudanum and oil, to use an injection of milk and water, which will assist in softening and removing indurated wax, if any be collected. It is almost unnecessary to mention, that the regimen should be moderately, if not entirely antiphlogistic; and in severe cases, a brisk action is to be kept up on the bowels; I have seen good effects from the use of antimony, particularly in cases complicated with rheumatism, or produced by exposure to cold.

As soon as an abscess is observed, it should be opened; if not opened early, or if it be situated too deep, considerable additional suffering may be expected from the slowness with which the matter will form and escape, owing to its being situated in a hard and unyielding structure. If allowed to take its own course, a troublesome fungous ulceration sometimes

follows, and a copious discharge of matter, which occasionally continues for years.

Ottorrhœa.

A discharge of offensive matter from the ear is at all times very unpleasant, more particularly so when it is habitual and in large quantity. Sometimes the discharge consists of an increased quantity of the natural secretion in a very fluid state; at other times it is more or less mixed with pus. It may be the consequence of increased activity in the secreting vessels, but more frequently depends upon chronic inflammation of the lining membrane of the ear, and occasionally upon deep-seated inflammation, and caries of the bones.

In treating cases of this description, attention should be paid to the above-mentioned circumstances; and it should be also remembered, that after a discharge has existed for some time, it becomes, as it were, necessary to the constitution, and cannot be checked without creating some tumult in the system, which may terminate very unpleasantly. Therefore, certain preparatory measures should be taken before the suppression of the discharge is attempted. Perhaps the best method of doing this, is to apply repeated blisters behind the ear, to keep the bowels open by gentle laxative medicines, to use a light and a dry diet, avoiding slops, and a greater quantity of liquid than is sufficient to prevent thirst. After this system has been pursued for some time, then we may apply injections of an astringent nature; and, if necessary, exhibit acetate of lead internally. In some instances, it may be well to keep a small blister open, or to apply tartar-emetic ointment to some other part of the body, to produce an external irritation. Should headache take place, or a tendency to lethargy, a few leeches ought to be applied behind the ear, or cupping-glasses to the neck, followed by a blister, together with smart purgatives. In some instances in which it might be unsafe to interfere with the discharge, the disagreeable fetor may be very much diminished, by injecting a solution of the chloruret of lime or soda, properly diluted.

PART V.

DISEASES OF THE SKIN.

CHAP. I.

GENERAL REMARKS ON DISEASES OF THE SKIN.

A KNOWLEDGE of this class of diseases is so necessary in a practical point of view, that I shall devote as large a space to their consideration as is consistent with the plan of this work. The study is important, from the frequency of their occurrence, from the little that is yet known respecting them, and from the connexion, nay, I might have almost said the dependence, of cutaneous diseases upon the state of internal organs.

These diseases have, for many years past, excited great attention; and the late Dr Willan has undoubtedly the credit of being the first to lead the way in the investigations which have taken place. On the Continent, Alibert and Rayer have followed his footsteps; but it is to be regretted that Alibert should have concealed, that the spring which first set his mind in motion on this subject, was the knowledge of what had been previously done by Willan!

Willan's great merit consists, not only in drawing the attention of medical men to a subject which had been quite neglected, but in classifying the different diseases, and in examining the writings of ancient medical authorities. It is incumbent, however, upon me to state, that the errors of his system are numerous, from carrying divisions and subdivisions of cutaneous diseases too far, and increasing the number of names, thereby complicating the study without simplifying the practice. Practical physicians will, I feel persuaded, agree with me in this statement, and their opinion is of more value than that of scientific book-worms. Our sole object in classifying and investigating diseases, is to render the treatment more successful and certain, which a too minute division decidedly counteracts. The practitioners who, according to my obser-

vation, are notoriously the most unsuccessful in the treatment of cutaneous affections, are those who, instead of taking a comprehensive view of the history of the case, and attending to the state of the digestive and other organs, embarrass themselves by making minute distinctions, and by endeavouring to force every disease into some of Willan's classes and orders.

Small-pox, measles, and the other exanthemata, are included in almost all the popular works on cutaneous affections, and classed along with other diseases with which they have no connexion; as, for example, with purpura. I have already treated of the exanthemata, in the first volume, as fevers attended with eruptions;—but my pathological opinions respecting these and simple cutaneous diseases, are in some respects very similar.

In almost every instance of cutaneous affection which has fallen under my observation, whether attended by fever or not, I find ample evidence in the history of the case, of functional derangement of some internal viscus. In some, the stomach and bowels are at fault, as in urticaria, erythema fugax, many cases of lepra, &c.; while others are evidently connected with disease of the liver, mucous membrane of the lungs, &c. Erysipelatous inflammation is always the consequence of some internal disease, either functional or structural, sometimes of the stomach and bowels, at others of the lungs, and occasionally of the brain. This will be shewn when treating more particularly of erysipelas, which I have placed in this part of the work, and not among the exanthemata, because it cannot be considered a specific disease, having, like small-pox and measles, a definite course, progress, and termination.

The principles which shall now be explained respecting cutaneous affections, are those which experience and observation have, from an early period of life, forced upon me, and which I have taught ever since I began to lecture, in the year 1823.*

* It gives me great pleasure to notice the work on the Diseases of the Skin by Mr Plumbe of London, and to recommend it to my readers as the best pathological and practical treatise on this class of diseases, which is to be found in any language.

Practitioners pay little attention in general to the seat of the cutaneous disease, and they have either very erroneous notions, or never think at all, of the nature of the affection. It may be briefly mentioned in this place, that its nature is generally inflammatory; but that its seat is various, sometimes affecting the superficial vessels of the cutis which secrete the cuticle, as in recent cases of some of the squamous diseases; at others, the sebaceous follicles are the seat of the inflammation, it being frequently produced by the mechanical irritation of the sebaceous matter which collects in too large a quantity, so as to over-distend the follicle and irritate its vessels,—as in acne, papulæ, &c.; whereas in a third class of cutaneous affections, as erysipelas, small-pox, &c. the diseased action is situated in the substance of the *cutis vera* itself, the inflammation and suppuration extending to the sub-cutaneous cellular membrane, and in some instances even deeper still, affecting the muscles and other tissues, as in bad cases of erysipelas and carbuncle. I shall avoid speaking of the *rete mucosum*, because its existence, even in the negro, has been denied by good anatomists; as well as of a minute glandular distribution, which some think they have seen by the help of the microscope, between the *cutis* and *rete mucosum*. Microscopic observations, like those performed by Mr Chevalier, who describes the existence of these glands, are always liable to fallacy, and it is well to remind those who have much faith in them, of the dilemma in which the late Dr Monro (usually called *secundus*) was placed, by an optical delusion, in the course of a very extensive set of experiments which he performed. He observed that all animal fibres were serpentine; he next proceeded with vegetable substances, and he also found that their fibres were serpentine. Astonished at these observations, he next proceeded to examine mineral substances, and he was astounded by observing, that whatever substance he examined, it was composed of serpentine fibres. He either wrote, or was engaged in writing a paper upon the subject, when he discovered, through a scientific friend, that the serpentine fibres were all produced by a slight defect in the glass of the microscope, which saved him further trouble at the time, as well as subsequent embarrassment and chagrin. It

is to be feared that considerable errors have crept into medicine, from the incorrect impressions conveyed by microscopic apparatus.

Some writers have described *papillæ* over the whole surface of the body situated in the true skin, but I am inclined to agree with Mr Plumbe, who states that he has never been able to discover any vestige of them; and if they do not exist, the diseases ascribed to this tissue should be erased from medical writings. Mr Plumbe has used a very strong argument against the existence of the diseases which have been ascribed to the papillæ of the skin: "Every genus of this order (papillæ) makes its appearance on all parts of the body at times, *except* where papillæ are really and easily found."—(P. 7.)

The skin performs several important functions:—1. The formation and repair of the cuticle, which is insensible like the nails, and forms an outer covering to the whole surface of the body. 2. The skin performs the office of separating a large quantity of a limpid fluid from the blood, which escapes from the body by what is denominated insensible perspiration; and the proper performance of this duty must have a powerful influence upon the action of every other organ in the body. 3. It would appear that we are able to introduce many substances into the body by the process of absorption from the skin; so much so, that even minute quantities of strychnia applied to a blistered surface have frequently produced violent constitutional effects.

In this work I shall treat of cutaneous affections in the following order, without splitting the orders into so many different genera and species, as is usually done.

1. Erysipelas, or Rose.
2. Papular Diseases.
3. Pustular do.
4. Squamous do.
5. Vesicular do.
6. Purpura.

CHAP. II.

ERYSIPELAS.

Erysipelas appears to have been noticed by the earliest writers on medicine, who frequently, however, confounded it with other diseases under the general term of "*ignis sacer*."

This disease has been divided into several varieties, viz. idiopathic and symptomatic—erythematic—phlegmonous—erratic—bilious—local—malignant and putrid; and some of these have been again subdivided.

All unnecessary divisions of diseases, as I have already observed, are useless in theory, and injurious in practice. Mankind differ as much in constitution as they do in expression of countenance; and it is well known, that peculiarity of constitution produces shades of difference in symptoms and appearances, which defy the ingenuity of the ablest nosologists; but they nevertheless have exerted themselves in a wonderful manner to accomplish the task, retarding instead of advancing the study of true pathology. If all the time and talent that have been misused in devising nosological arrangements had been employed in discovering the nature and seats of diseases, our knowledge of pathology and of remedial agents would in all probability have been much further advanced than it is at present.

I shall treat of all forms of the disease, under the simple term of erysipelas, while I shall take care to notice the peculiar, as well as the occasional symptoms, appearances, and terminations which may seem to indicate corresponding alterations in the treatment. I am induced to follow this plan here,

because it has met with the approbation of practical men of considerable standing in the profession, who have done me the honour to attend my lectures.

Phenomena of Erysipelas.—This disease takes place in people of all ages;—I have seen it in new-born infants, as well as in extreme old age. It more particularly occurs, however, in certain constitutions,—viz. in those who are liable to affections of the skin, to gout, and who are subject to disorder of the stomach and bowels. It is a disease met with in practice in every degree of severity, appearing under the form of the slightest erythematic blush confined to one spot, or under that of deep and intense inflammation of the skin, extending over the whole body. The inflammation may be severe, affecting not only the skin and sub-cutaneous cellular tissue, but also involving the muscles, and terminating in extensive suppuration, ulceration, and mortification. In some cases the disease spreads from the skin to deep-seated parts, while in others the inflammation appears to extend from within outwards, sometimes from the periosteum, when it is primarily inflamed, but more frequently from the tendinous aponeuroses forming the strong fasciæ which bind down the muscles. In such circumstances, the general phenomena of the disease and the local appearances differ considerably from those of simple erysipelatous inflammation. When the periosteum is primarily affected, severe gnawing pain, sleepless nights, &c. will be complained of for months, perhaps for years, before the skin partakes of the inflammation. When the fasciæ of muscles become inflamed, whether from a puncture or from the application of cold, deep-seated pain, tumefaction, tenderness to the touch, and severe constitutional symptoms, precede the redness of the skin. In contradistinction to erysipelas, these cases have been named by Dupuytren and others, *erysipeloid diseases*, and appertain more to surgery than physic.

The first local symptoms of erysipelatous inflammation are a tingling or pricking pain, with some degree of heat, swelling, tension and redness of the part. Soon a pungent burning pain is experienced, aggravated by motion or pressure; the swelling increases rapidly; the surface presents a shining appearance; on pressure, the redness disappears for a moment,

but immediately returns; and, as the disease advances, the part assumes a purple colour.

The constitutional disturbance manifests itself in the shape of febrile symptoms and general functional disorder, varying according to a number of circumstances, preceding the attack of erysipelas,—such as the extent and severity of the disease, as well as its duration and situation. If the disease have appeared after a long and debilitating illness, the symptoms will be different from those produced in a person who had been previously in good health. If the inflammation be superficial, the symptoms will be comparatively slight; if it be situated on the head and face, delirium and even coma may occur, which in all probability would not have happened if the disease had attacked an extremity, and were limited to the same extent of surface.

The external characters of the disease vary much according to situation, severity, and duration;—affecting the head and face, the features swell much, as in small-pox; the conjunctiva of the eye partakes of the inflammation, as well as the membrane lining the nose, mouth, and ears; vesication takes place, even in slight cases, or the parts become exceedingly hard, more particularly the ears; and if the inflammation be superficial, desquamation of the cuticle, after diminution of the redness and pain, marks the decline of the disease. In cases where the inflammation has been more intense and deeper-seated, doughiness or bogginess is left, which renders it probable that matter is effused. On some occasions, distinct fluctuation leaves no doubt of the existence of matter, which may be either circumscribed, as in phlegmonous erysipelas, or diffused, as in the diffuse inflammation of the cellular tissue that occurs in patients who are of a bad habit of body, and which arises sometimes from a prick in dissection.

The circumstances preceding an attack are also very various; erysipelas frequently comes on at the termination of fevers of long duration, as well as of inflammations of different organs, more particularly of the brain, lungs, and peritoneum; it also takes place in individuals who have laboured for years under different chronic diseases, medical or surgical. Those who have long indulged in the abuse of strong potations, as

well as gourmands, are also liable to it. At other times it appears to be the immediate effect of cold operating on the general system, or of some indigestible matter in the stomach and bowels. In whatever circumstances erysipelas may take place, the attack is generally preceded by rigors or chilliness, alternating with flushes of heat, oppression at the præcordia, difficulty of breathing, cough, expectoration, pain in the back and loins, general uneasiness, delirium, a sense of weight in the head, headache, lethargy, and sometimes a state bordering upon coma, with high or low toned febrile action. These phenomena may exist with more or less severity for one day, or for twenty days, before the inflammation appears in the skin; there are no regular periods or stages, as in measles, scarlatina, and small-pox. Erysipelatous inflammation sometimes appears on a part for a few hours, and suddenly vanishes, shewing itself perhaps in another situation; or if it do not shew itself again on the surface, the constitutional symptoms become aggravated, coma or dyspnœa frequently follows, and sometimes even death itself.

Causes of Erysipelas.—From the prevalence of erysipelas in particular years, a belief is pretty generally entertained of its being contagious, which has been much strengthened by the additional fact of the occurrence of a considerable number of cases at one time in particular hospitals. There is much stronger ground for believing that erysipelas is produced by epidemical influence. But the occurrence of the disease can, in the majority of cases, be much better accounted for by sudden changes of atmospheric temperature, along with considerable moisture, together with the state of the bowels, and indulgence in particular articles of food.

It is proper to state, that I deny altogether the idiopathic nature of erysipelas, and that I believe it to be an occasional symptom of different diseases, which diseases may frequently occur, under atmospherical, epidemical, and contagious influences.

In a great majority of instances, if the particulars of the cases be inquired into, it will be found that no communication, direct or indirect, had taken place with others labouring under erysipelas. Sometimes it attacks nurses and others who

have had an anxious attendance upon the sick, labouring under various diseases, as peritonitis, pneumonia, different kinds of fevers, fractured limbs, and injuries of the head. Some may have been attacked, no doubt, with erysipelas, when attending patients labouring under that disease. But such an event does not take place more frequently than during an attendance on patients affected with other diseases. I have seen a great number of cases of erysipelas, and have been greatly interested, from the earliest period of my professional life, in the investigation of its nature and seat; but have never met with a nurse or an attendant who was attacked with erysipelas when attending a patient labouring under that disease, although the confined, crowded, and extremely filthy state of the apartments, on very many occasions, seemed but too well calculated to contaminate the atmosphere, and thereby to promote the generation and communication of contagion. If erysipelas were as contagious as is represented, we ought certainly to see erysipelas producing erysipelas in the same determinate manner that small-pox and measles are known to produce these complaints; but I have never observed such a phenomenon.

That erysipelas sometimes appears as an epidemic, cannot be denied, and on many such occasions it is said to spread by contagion in hospitals; but if it were an idiopathic disease, and contagious, it ought to spare none, or at least few who have an ulcer, or any abrasion of the skin. It ought to spread more or less slowly from one to another, so as at last to affect almost every one who approached within the sphere of the contagion. We find, however, that it only attacks individuals here and there, frequently at a distance from each other, who have been in separate wards, and who have never come once in contact. This is very different from what occurs in small-pox, measles, and a few other diseases which are known to be contagious, and which are always marked by symptoms peculiar to themselves. In these there is an eruptive fever, which continues for a certain number of days before the eruption appears. This goes through a regular course of advancement and recession, and all the other phenomena only vary in intensity. Each disease is recognized

under every circumstance of age, sex, and constitution. Neither small-pox nor measles can be generated by any of what are called the common causes of diseases not contagious, such as exposure to cold, damp, and fatigue, affections of the mind, &c.

Erysipelas sometimes does not appear in the course of fevers, inflammations, and other morbid conditions of the system, till perhaps the end of the third or fourth week; at other times it occurs on the second or third day, and at all intervening periods. This is certainly very unlike the acute eruptive diseases which are known to be contagious; besides, erysipelas has no regular and determinate course as the others, which attack the same individual only once in a life-time, while erysipelas may affect a person twenty times. Let me ask if any one has succeeded in producing erysipelas in a healthy person by introducing matter taken from an erysipelatous surface? This has been stated, but I believe it to be a mere assertion: but even if this could be answered in the affirmative, it is no proof of the specific and contagious nature of erysipelas, because the same affection has followed scratches received during dissection. It has followed the application of leeches and blisters, as well as injuries produced by minute splinters of wood, and punctures made by perfectly clean sewing needles. In no point of view, then, can erysipelas be said to be a specific disease, or to resemble other diseases which are known to be contagious.

When erysipelatous epidemics have prevailed, I have always remarked that they have occurred either under sudden vicissitudes of weather, attended by considerable moisture, or during the autumn after a hot summer, when there was a great abundance of fruit. In the first circumstances, fevers, and acute and sub-acute inflammations, also prevail, particularly bronchitis. In the last, the functions of the stomach and bowels suffer; irritation of their mucous membrane ensues; fevers and diarrhœas also prevail; and the erysipelas, in both cases, although a frequent occurrence, is a mere symptom.

The reasons why erysipelas should be occasionally very prevalent in hospitals, and be attended with greater fatality than in private practice, can be easily explained. In this

country, from the pride of being independent, it is only the most destitute of the poor,—servants at a distance from their friends,—or country people, who desire a consultation of doctors,—who can be prevailed upon to go into an hospital. In hospitals, patients are generally too much crowded together; there is great irregularity of temperature in the wards; and sufficient attention is not paid, except at the hour of visit, to ventilation.

These circumstances, and many others which could be adduced, enable us to account in a more satisfactory manner for the prevalence of erysipelas in hospitals, than by supposing, as too many have done, that the disease lies in ambush, embedded in the lime, mortar, and wood-work of the wards, watching favourable opportunities to seize on flesh and blood!

Appearances on dissection in Erysipelas.—The part which had been the seat of the inflammation, will be found after death to have lost much, if not the whole of its redness, but not its swelling. Upon making an incision, a bloody serum will be found infiltrated into the cellular substance. The skin will be often seen thick and hard, in the same state as it is observed to be when a person has died twenty-four hours after a blister had fully risen; or, if suppuration have taken place, pus will be found infiltrated instead of serum, in some places distributed generally through the cellular tissue; in others, circumscribed little abscesses exist. In the most severe degree of phlegmonous erysipelas, the parts will be very tender, easily torn, and a large collection of fetid pus will be found, with more or less of the cellular tissue detached, and perhaps mortified, the disease even extending into the muscles. In sub-cutaneous cellular inflammation, more extensive destruction will be discovered; small abscesses will be found, but pus and a dark-coloured ichor will be seen generally and deeply diffused among the muscles, blood-vessels, &c.; partial mortification and sloughing will have taken place here and there; and in some dissections, the muscles will be seen tender, and altered in appearance, resembling, in many cases, the last stage of putrefaction. I have seen the blood-vessels also extensively diseased in their inner coats, and the lymphatics as well as veins containing a puriform fluid.

Besides the above appearances, traces of extensive disease in the membranes and substance of the brain, pleura, pericardium, and peritoneum have been seen. But of all the tissues in the body, the mucous membranes are most frequently found in a state of inflammation, and in many instances the fatal termination has been distinctly traced to bronchitic inflammation.

Some years ago, I was requested to visit an infant three days old, who had shewn symptoms of great suffering from the moment of its birth, which was attributed to colicky pains in the abdomen. On examining the abdomen, the commencement of erysipelatous inflammation was discovered, which, by the following day, had extended nearly over the whole trunk and thighs. Soon afterwards it began to sink, and died in about forty-eight hours after the first appearance of the external inflammation. On dissection, the most extensive ravages of disease were discovered in the abdomen, the effects of peritoneal inflammation,—viz. considerable exudation, and the agglutination of the intestines to each other.

My friend and pupil Dr Yates, when attending my Dispensary, was requested to see a child one month old, on a Saturday evening. He found the abdomen tumefied and tense; there was an erysipelatous spot about the size of a half-crown on the inner part of the right thigh near the groin; the child appeared to him to be dangerously ill, but did not seem to be in much pain. Dr Yates was informed that it had been taken ill on the preceding Thursday morning, after having passed a bad night; that the bowels were confined; and that she cried violently at times, and gave evidence of abdominal suffering. By the following afternoon the erysipelatous inflammation had extended over the whole abdomen, the child was in a moribund state, and died on the following morning.

Dissection.—The abdomen was considerably distended. The surface of the abdomen and thighs shewed the remains of the erysipelatous inflammation, and there were, besides, much tumefaction and discolouration of the integuments at the lower part of the chest. On opening the abdomen, the intestines, which were moderately distended with flatus, appeared very vascular, as well as that part of the peritoneum which lines the cavity. Flakes of coagulable lymph of a yel-

low colour were spread over the intestines, and interposed between their convolutions, in some places forming slight adhesions. On displacing the intestines, a large quantity of this matter mixed with serum was found, a layer of yellow-coloured lymph covered the whole of the anterior and inferior surface of the left lobe of the liver, which adhered not only to the parietes of the abdomen, but was also glued to the stomach. The liver, when cut into, presented a very dark appearance, and the gall-bladder was nearly empty. The omentum was also covered with the above-mentioned exudation. The stomach distended with air, was found to adhere to the diaphragm as well as to the liver. The colon was much contracted, and on being slit open, its mucous membrane was found very vascular, much elevated here and there, and coated with a dark, thick mucus.

The viscera of the pelvis were found slightly matted together by recent depositions of lymph. The ovaria were larger and softer than natural, and, with the uterus, were covered with coagulable lymph; the left broad ligament was attached to the peritoneum at the brim of the pelvis, by an interposed mass of lymph.

In the thorax, the pleura costalis was very vascular on both sides, and slight recent adhesions were observed with the pleura pulmonalis, by means of large masses of lymph precisely similar to those met with in the abdomen and pelvis.

The following case by Dr Gartshore is extracted from the 2d volume of the Medical Communications. "The child of —— Warwick, in June 1773, was observed to be uneasy and hot, to vomit a yellow fluid frequently, and to have fewer stools than is usual for a child of that age. A gentle emetic was first given, after which manna was copiously poured down, and glysters frequently exhibited, notwithstanding which, his bowels were difficultly and scantily evacuated. Two days after the abdomen was observed to be swelled, tense, painful to the touch, and had an inflamed appearance, which extended to the scrotum. Gentle aperients, glysters, fomentations, and the semicupium often repeated, were of no avail. He died on the twelfth day from his birth, and the fifth from the attack.

Dissection.—On opening the abdomen, we found the appear-

ances very similar to what we had often observed in the true puerperal fever,—viz. a purulent exudation covering the surface of the peritoneum, and an adhesion of many of the viscera to this membrane and to one another from the diaphragm downward, with some extravasated fluid in the abdominal cavity. On laying open the scrotum, that also was swelled and inflamed, and we found purulent matter upon the surface of the epididymis and testis on each side; the testes themselves appearing inflamed. But though the chylopoietic and spermatic organs seemed to have undergone superficial inflammation, there was no appearance of any tendency to mortification."

Underwood, when noticing the appearances on dissection in the bodies of several children who had died of erysipelas, states that "the contents of the belly have frequently been found glued together, and their surface covered with inflammatory exudation, exactly similar to that found in women who have died of puerperal fever. In males, the tunicæ vaginales have been sometimes filled with matter, which has evidently made its way from the cavity of the abdomen, and accounts for the appearances of the organs just now described; in females the labia pudendi are affected in like manner, the pus having forced a passage through the abdominal rings." (Diseases of Children, vol. I. p. 36.)

Some years ago, I was asked to see a father and son labouring under erysipelas of the head and face, as pure examples of idiopathic erysipelas. In both cases I was able to satisfy the gentleman who had been previously attending, that there was a general affection of the mucous membranes,—that of the lungs in one, announced by the dyspnœa, cough and wheezing, —and that of the stomach and bowels in the other, announced by thirst, very red tongue, tenderness and tumefaction of the abdomen. Both cases presented most unpromising appearances; proper remedies were applied; stimulants withdrawn: one recovered, but suffered during several years from the effects of chronic inflammation of the mucous membrane of the air-passages, and alimentary canal. On opening the body of the fatal case, traces of inflammation of the membranes of the brain were discovered, viz. vascularity and effusion; and on

slicing the brain, it was found to contain a larger quantity of blood than usual. The pericardium was attached to the heart at every point. The mucous membrane of the trachea and bronchia was found dark-coloured from vascularity, and the tubes were filled with tough exudation of a reddish colour.

The mucous membrance of the stomach was red, vascular, and soft, easily separated, and covered with a thick tenacious exudation; this was also the condition of the mucous membrane of the intestines, particularly of the ileum, where the vascularity was much greater than in the stomach, and appearances were discovered indicating the commencement of ulceration.

In the year 1823, I was requested to see a woman with erysipelas of the abdomen, which had commenced about a fortnight after abortion. The whole surface of the belly was affected, the inflammation was of a deep purple colour, with sloughing at the umbilicus. Although this woman possessed considerable property, she was living in a state of abject misery, neglected by a brutal, drunken husband, and had been long suffering in mind, as well as in body. A very imperfect account could be obtained, either of her previous or present symptoms. On the following day some of the mysteries of her case were removed by the separation of a slough at the umbilicus, and the discharge of a large quantity of urine. The woman soon sunk under her sufferings; and on dissection, the peritoneal surface of the fundus of the bladder was found strongly attached to the peritoneal lining of the abdomen corresponding to the umbilicus; the bladder appeared to have been enormously distended and neglected, till at last the urine found an exit by this process of nature. This valuable preparation is in my Museum.

The following abbreviated case of erysipelas is extracted from the pathological work of Tacheron.—A man was seized on 1st February 1808, with anorexy, nausea, headache, severe pain of neck, and difficult deglutition. These symptoms gradually increased for some days, the face becoming swollen, inflamed, and painful, with severe diarrhœa. He had cough and expectoration, which afterwards became bloody, and the patient died on the 19th. The following appearances were

found on dissection : " In the head there was effusion of serum in considerable quantity (ʒiss.) in the ventricles, between the membranes on the surface of the hemispheres, and also at the base of the brain. In the thorax several old adhesions were found, between the surfaces of the pleura on both sides. The middle lobe of the right lung was reddish, hard, and did not crepitate ; in consistence it resembled liver, and adhered to the portion of the mediastinum next the heart. On cutting into this lobe, a thick, greyish, puriform fluid oozed out ; the rest of the lungs being healthy. The pericardium adhered in every part to the heart, but particularly on its right side, where it could not be separated without tearing its substance. The heart was not much larger than natural; there was a well-marked ossification of one of the mitral valves, which appeared almost entirely detached. At the base of the aortic valves, there were also observed points of ossification, and cartilagi-nization. In the abdomen the intestines were found distended with gas; but, as well as the stomach, were in other respects healthy. The liver was larger than natural, and had contract-ed preternatural adhesions with the diaphragm; the convex surface of its left lobe was covered with lardaceous substance, which entered the substance of this viscus to the depth of two or three lines. The gall-bladder contained polyhedrous con-cretions of the size of onion seeds, and of a dark-green colour ; the cystic and choledic ducts were also filled with these sub-stances. The spleen was three times its ordinary size, and so tender and soft, that the slightest pressure reduced it into a pulp. The kidneys were more vascular than natural."

The two following dissections of erysipelatous subjects, are extracted from Dr Hastings' work on the Lungs :—

" Dissection of case 5th, (page 228.)—The mucous mem-brane lining the bronchia and air-cells, was found very much inflamed. The tubes were filled with frothy serum, which in some places was mixed with a substance very like pus. There were several small tubercles in the structure of the lungs, but none of them appeared inflamed. There were elongated ad-hesions between the pleura pulmonalis and costalis. Abdo-minal viscera healthy.

" Dissection of case 6th.—A considerable quantity of fibrin was found in the cavity of the abdomen. The intestines were

generally glued together, and the peritoneum was highly vascular. When the thorax was opened, the lungs did not collapse. The pleura was not inflamed. The mucous membrane lining the trachea, bronchia, and air-cells, was highly vascular, and the tubes were filled with a bloody serum. The right auricle and ventricle contained more blood than natural.

Pathological Remarks on Erysipelas.—Doubts have been already stated as to the existence of idiopathic erysipelas, when it does not proceed from external injury ; and I am inclined to believe, that when it does occur after external injury, it is even then, in most instances, only symptomatic of some internal affection, which may be a disorder of function, or one proceeding from structural lesion of some internal organ. Erysipelas appears to be an inflammation produced by one of those salutary efforts of the constitution, by which disease is sometimes removed or translated from one tissue to another : In this instance, from an internal organ, to the skin, which has comparatively a less important part to act in the animal economy. In point of fact, erysipelas ought to be regarded very much in the light of a natural blister. But I shall now enumerate the points on which these opinions rest, and afterwards proceed to adduce the evidence.

1. The constitutional disturbance, which exists in all cases before the appearance of the erysipelatous inflammation, shews erysipelas to be merely an occasional symptom of some other diseased state of the system.

2. The mitigation of the internal disturbance which frequently follows the appearance of the cutaneous inflammation ; and the reproduction of perhaps worse symptoms upon the sudden recession of the erysipelas.

3. The appearances on dissection.

4. The relief afforded by treatment founded on these opinions.

1. In proof of the first point, that constitutional disturbance exists in all cases prior to the appearance of the cutaneous inflammation, it may be mentioned, that I have never yet seen a case of erysipelas, however slight, which was not preceded by constitutional symptoms. Renauldin, in his short but able article on erysipelas, in the "*Dictionnaire des Sciences Medi-*

cales," in giving an account of the symptoms and march of the disease, says, " It is rare that idiopathic erysipelas manifests itself, without having been preceded by some phenomena which denote an approaching alteration of health. But these precursory signs, being common to many diseases, do not announce an erysipelatous eruption, more than another of the exanthemata, or some other fever. It is thus that a person feels wandering pains in the limbs, spontaneous lassitude, cold, shivering, agitation, anxieties, and is generally out of order; he soon complains of disgust at food, nausea and inclination to vomit, violent headache, want of sleep;—a burning heat succeeds to the cold, and spreads over the whole body," &c.

In the previous page, in speaking of idiopathic erysipelas, Renauldin appears to entertain the same opinions that are here advocated, for in his division of erysipelas into different kinds, he states, that the following division, which he has borrowed from Burserius, appears to him much more natural and useful than any other: " 1. Idiopathic erysipelas, primitive or essential, that is to say, that which takes place spontaneously, without having been preceded by any other malady, *and which is produced by an internal cause, (et qui nait d'une cause interne.)* 2. Symptomatic or secondary erysipelas, which depends upon another affection, and goes through its course with it: as phlegmon, œdema, every kind of continued fever, and different internal affections, sometimes of an acute, sometimes of a chronic nature. 3. Accidental erysipelas, which is occasioned fortuitously by a manifest external cause, acting immediately upon the skin; as the scorching rays of the sun, a superficial scald, the application of cantharides, or any other acrid and irritating substance, injuries, &c."

Cullen has given the following history of the symptoms:— " Erysipelas of the face comes on with a cold shivering, and other symptoms of Pyrexia. The hot stage of this is frequently attended with a confusion of head, and some degree of delirium; and almost always with drowsiness, or perhaps coma. The pulse is always frequent, and commonly full and hard. When these symptoms have continued for one, two, or at most three days, there appears on some part of the face

a redness," &c. (Vol. I. p. 255.) Although Cullen specifies "erysipelas of the face," yet it is well known that this affection, attacking any other part of the body, is preceded by a similar train of symptoms.

Sydenham, in his letter on the plague of 1665 and the following year, observes, "that erysipelas began much in the same manner as the plague, viz. with a shivering followed by a feverish heat; so that those who never had the disease before, think it is the plague, till it fixes itself in the leg, or some other part."

These paragraphs are purposely introduced, in order that I may not be suspected, by those who are yet inexperienced, of having dressed up a statement of the precursory symptoms to suit my own purposes.

Cutaneous inflammation, produced by a blister, or a scald, will most undoubtedly excite general irritation, and more or less fever. In this case we have ocular proof to guide us, but in erysipelas, we have the general commotion of the constitution first, which I have known to continue for 10, or 12, or 30 days before the erysipelas appeared.

Cullen himself does not seem to have been well satisfied with the prevailing doctrines respecting erysipelas. In describing the different species of this affection, at page 75. of his Nosology, after mentioning the erysipelas pestilens of Sydenham, he observes in a note, "This and the following species (erysipelas contagiosum) seem to be nothing but fevers with a symptomatic erythema;" and I find in the next page, that Cullen entertained doubts regarding the idiopathic nature of several other cutaneous affections. Treating of miliary fever, for instance, he says, "That it is never idiopathic, I dare not affirm, in opposition to the opinion of all physicians from the middle of the 17th century to the present day, and contrary to the sentiments of some respectable modern physicians: but as I know that experience, in this case, is often fallacious, and that physicians, for the most part, are but a herd of imitators, I am forced to remain doubtful."

No one can have been any length of time in practice, without having met with instances of erysipelas occurring in individuals whose constitutions were destroyed by long-continued

indulgence at table, and drunkenness,—in whose bodies there were abundant evidences of functional or structural disease of many important viscera; therefore it is unnecessary to quote cases in proof of this.

That the disease frequently occurs during the progress of severe internal disorders, the records of medicine fully prove; several cases in my own practice have been already mentioned, when describing the appearances found on dissection, and similar cases have been quoted from Gartshore and Underwood. In addition to these facts it may be mentioned, that the late Dr Gordon of Aberdeen, in his able work on Puerperal Peritonitis, published in 1795, states, (at page 75,) that "one of the most favourable symptoms is an erysipelas on the extremities, or abscesses on different parts of the body; for such are certain signs of a salutary crisis." And in a note, (at page 58.), he observes: "This critical erysipelas most commonly fixed on the extremities, but in a few instances on the external surface of the abdomen, which happened in a case of puerperal fever, which I attended in the year 1788. The case alluded to, is the wife of William Walker at Newbridge, whom I attended at the same time with Thomas M'Roberts' wife, whose history is given in case VI. In both cases, the crisis was by an erysipelas, which, in the latter, fixed on one of the upper extremities, and in the former, on the integuments of the abdomen."

Cullen, in treating of pneumonia, states, that "sometimes the disease disappears on the second or third day, while an erysipelas makes its appearance on some external part, and if this continue fixed, the pneumonic inflammation does not recur." (Vol. I. page 149.)

When treating of hepatitis, Cullen also observes, that "it would seem to be sometimes cured by an erysipelas appearing in some external part. (Vol. I. page 171.)

From the repeated observation of such facts, I cannot avoid considering erysipelas in the light of a natural blister; and it is very probable that the ancients were first led to apply external irritants, and the actual cautery, by observing the beneficial effects of erysipelatous inflammation occurring under severe internal disease.

2. The second point of evidence on which these opinions are founded, is the mitigation of the internal disturbance which frequently follows the appearance of the cutaneous inflammation; and the reproduction of bad, nay perhaps of worse symptoms, than had previously existed, upon its sudden recession.

These facts are so often witnessed, that I feel obliged to receive them as a part of the medical evidence of the case.

Sydenham's third reason for considering erysipelas to resemble the plague, is, "The expulsion of the malignant matter to the skin on the third or fourth day, with an abatement of the symptoms."

Hoffman, in treating of erysipelas, observes, that "it sometimes exhibits a manifest mark of health; other diseases, especially a convulsive asthma, and a convulsive colic, have been removed by an attack of erysipelas." In another passage he states, "But those who die of this disease, are carried off by a fever, which is mostly joined with a difficulty of breathing,—sometimes with a delirium,—sometimes with drowsiness, &c."—The same author again remarks, that "it is rendered very dangerous by improper treatment. I have seen erysipelas *strike in*, after taking a vomit and a strong purgative, when an inflammation of the stomach, and death, have followed. Bleeding also has struck it in, and rendered it wandering with much greater inconvenience. I have also observed, that after being repelled in the leg, by an application formed of camphor, red lead, and boll, it has been followed by a high fever, and intolerable pain of stomach, a great difficulty of breathing, bilious vomiting, loss of strength and appetite.—These symptoms have not gone off, till the erysipelas had been invited back to its former seat by a blister, and antispasmodics, and mild sudorifics; and I certainly know, (continues Hoffman,) that an erysipelas of the head, having been treated by repellent, cooling, binding, or too spirituous applications, and camphorated liniments, has brought on a vertigo, lethargic disorders, and quinsey, delirium, and palsy of the tongue; which evils have frequently proved fatal to persons in years, and scorbutic habits."

"A gentleman," says Dr Swan, the accomplished translator

of Sydenham's works, "who, by the cold air, suddenly struck in the erysipelas of his face, had all the symptoms of an inflammation of the brain, and was in the most imminent danger, appeared to be snatched from death by bleeding in the jugular vein, and besides that, applying two large blisters to both sides of his neck, bleeding him in the arm, and giving him a strong purge, all which was done in the space of an hour."

Mr Abernethy noticed a case of this kind in his lectures. "A stout healthy young man had an attack of erysipelas on his hand; he plunged it into cold water, and was soon seized with insensibility; he fell down in a state of torpor, and soon died."

This gentleman is also represented to have said in his lectures, "I'll be hanged if erysipelas is not always the result of a disordered state of the digestive organs. I never see it come on if the digestive organs be right, and it goes away as soon as they are put right. Now what is the medical practice? they powder the part a little, and they give bark, and so on!!"

"It has been observed," says Wilson Philip, in his work on Simple and Eruptive Fevers, Vol. I. page 362, "that if the typhus has commenced before the appearance of this eruption (erysipelas), the symptoms of *synocha* are often recalled by it. They are not only recalled but maintained, for the typhus, which supervenes towards the end of an erysipelatous fever, is less considerable, in proportion to the preceding symptoms, than in other varieties of synochus." And at page 367, he observes: "Besides, the erysipelatous, like other eruptions which appear in continued fevers, has been known suddenly to recede; an alarming train of symptoms, of which debility is the characteristic symptom, supervene." In another place, he also remarks: "This is also to be remembered, that when retrocession takes place, the patient is seldom out of danger till the eruption is recalled, which is done with greater difficulty the more he is debilitated."

It may be said that the appearance of the erysipelatous inflammation does not *always* produce mitigation of the internal disease. The simple answer to this objection is, neither does an artificial blister, applied for the express purpose of translating the diseased action to the surface, which I maintain the

erysipelas is intended by nature to effect. In severe inflammation of an internal organ, a blister, however large, has but little effect, if applied before the disease is very much subdued by depletion. In like manner, I may be allowed to say respecting erysipelas, that if the internal disease exist in a greater ratio than the cutaneous inflammation, then little or no constitutional relief can be expected.

At the period when the erysipelatous inflammation begins to decline, particularly under improper treatment, it is frequently observed that the functions of the brain or lungs, or perhaps both, appear to become suddenly and seriously affected, accompanied by oppression at the præcordia, and other alarming symptoms. In such circumstances, it is said, in ordinary medical language, that the disease has spread, or extended itself from the skin to internal organs; others speak of it as a translation or metastasis. Cullen denied the doctrine of translation, and was rather inclined to adopt the idea of the extension of the inflammation. Thus, when the erysipelas attacks the head, and when the brain becomes affected, it is said to be in consequence of the extension of the inflammation through the contiguous parts. There can be no doubt that a fair translation does occasionally take place in inflammatory complaints, particularly when connected with erysipelas; so much so, that we actually find a variety of erysipelas in the books, termed "*erraticum*." In general, however, attentive observation has long convinced me, that in erysipelas, diseased action had existed in the internal organ before the external inflammation appeared, during what may be termed the eruptive fever, and that when the cutaneous inflammation occurred, acting the part of an effectual contra-irritant, it mitigated, but did not altogether remove the original disease. In erysipelas, the attention of the patient and also of the practitioner is attracted by the burning heat and pain of the external inflammation; but the internal disease becomes again apparent when the effect of the external inflammation subsides. Here again we cannot fail to discover additional proof of the analogy between a natural and an artificial blister.

Before quitting this part of the subject, a few remarks may be made regarding the mitigation of symptoms upon the ap-

pearance of the erysipelas, although it is repeating nearly the same observations which were made in the first volume, when treating of the General Pathology of Eruptive Fevers. The relief will not strike the eye of a symptomatical physician, who cannot see the *pathological* mitigation of symptoms, because the patient, who may have been previously lethargic or comatose, now complains most vehemently. Formerly there may have been little complaint, and little or no febrile movement; now, however, there may be great anxiety, restlessness, pain, with febrile symptoms well developed; but upon minute examination of the particulars of a case of simple erysipelas, these will be found to depend principally, if not entirely, upon the external inflammation. Here again we observe the analogous effects of a common blister, which very frequently aggravates the patient's suffering, while it is mitigating the disease.

3. The third point on which these doctrines are founded, is the appearances found on dissection; and a triumphant appeal may be made to the dissections already recorded under the proper head, at page 176. I may here take an opportunity, however, of shortly stating the appearances found in the brain of a man affected with erysipelas. A respectable spirit-dealer was taken into the surgical hospital, affected with spontaneous erysipelas of the right arm; he had been several days ill. When Mr Syme saw him, there were symptoms indicating violent inflammation of the brain. Immediately before my visit, the diseased part had been scarified, from which twelve ounces of blood were abstracted. The inflammation on the fore-arm was severe, but above the elbow it was superficial, and did not extend quite to the axilla. He was continually talking, and could scarcely be restrained in bed, declaring he wanted to be up, for he had no complaint whatever; his eye was bright and lively; the expression of countenance displayed no signs of sinking; tongue parched and furred towards the root; pulse 98, and soft; considerable rigidity of the flexor muscles of the right arm. We were of opinion, that the man was in great and immediate danger; but more from the inflammatory action in the brain, than from the erysipelas. The head was ordered to be shaved, and cold applied. Before

this was done, he became more furious, and continued so till within an hour of his death, during which short period he was comatose; the rigidity was observed to take place in both arms, and to increase till the time of his death. After great difficulty the friends agreed to allow the head to be examined, but the head only; and, as had been predicted, great vascularity was discovered in the membranes of the brain, but particularly at its base; the brain itself was generally soft, especially the middle lobes, and more particularly still, the *corpora striata*, and especially that on the left side, which was reduced into a state of complete ramollissement; the white substance of the brain was generally of a brownish hue,—an appearance which is known to be produced when its vessels contain much blood. A small cavity, containing a minute portion of blood, was found in the substance of the middle lobe on the left side.

4. I have now to bring forward a most important part of the evidence in proof of the views here advocated, viz. the relief afforded by proper practice.

Treatment of Erysipelas.—It is truly lamentable to reflect how fatal erysipelas has always been, and continues to be, not only in public hospitals, but in private practice. It is not my intention, and certainly it is not my interest, to give offence to any one, but I cannot resist expressing an honest opinion, that much of this fatality is the result of bad practice, founded upon erroneous pathological notions, or perhaps, if one may be allowed to judge from the vacillating measures too often employed, upon no fixed notions whatever. When engaged in lecturing or in writing, I think myself bound in duty, as well as in honour, to adopt the maxim of Aristotle, when he said, "Plato is my friend, but truth much more." However highly a medical man may be respected, and whatever friendship may be felt towards him, such circumstance will, I trust, never prevent me from expressing an opinion respecting any particular view or mode of practice which he may pursue, particularly when it is destructive to human life.

Many of my medical acquaintances are as much afraid of erysipelas as they would be of the plague: others, from the

dread of typhoid symptoms, and of mortification and putridity, aggravate the disease by improper remedies.

The symptoms which are called typhoid, are often the consequence of the intensity and depth of the external inflammation, running into extensive destruction of parts, by diffuse suppuration and mortification. This cannot be denied, and when the case arrives at these stages, patients have but little chance of recovery under any plan of treatment; but the question comes to be, How are these bad consequences to be prevented in subsequent cases? The answer is easy, and the practice simple, provided medical men would use the common sense with which they are endowed, and give up a prejudice that has been inculcated on their minds from the earliest period of their lives,—forgetting that there is any thing mysterious in erysipelas,—and learning to treat each case that comes before them, upon its own individual merits.

Some take large quantities of blood indiscriminately from every patient, because they have seen the practice successful in one or two instances. Others give the most powerful stimulants and tonics in every case, because they have seen that plan succeed in a few instances. A third set depend upon opiates, or some other *one* particular remedy. A fourth class will be found to draw blood, but not in sufficient quantity, and perhaps they repeat the operation in small quantities without mitigating the disease, while they do great harm by debilitating the patient; and in order to counteract this, they give stimulants too soon. Some timid practitioners will be found to do nothing, but to keep open the bowels, and sprinkle the diseased part with flour. Often have I had occasion to commiserate wretched patients, who, with dry, parched tongues, were doomed to swallow beef steaks,—and others, consumed by burning thirst, compelled to take wine, and even brandy! Some practitioners make incisions into erysipelatous parts in all circumstances, while others decry the practice, except when matter is formed, as in phlegmonous erysipelas.

Typhoid symptoms, besides being produced by mortification, and extensive destruction of the affected parts, are frequently occasioned by the continuance or concentration of acute or chronic diseased action in a vital organ, as seen in

the cases already recorded under the head "*Appearances on Dissection.*" The next question comes to be, after this information is obtained, How can these results of diseased action be prevented in subsequent cases? The answer is neither so easy, nor the practice so simple, as in the case of the external inflammation, where that alone has to be subdued; because it is now fully established that erysipelas occurs complicated, with a great many diseases of internal organs, and that inflammation of these (even of the brain itself,) may go on, and be beyond the reach of art, without exciting such violent symptoms as to make the patient or his friends, nay, even some medical men, aware that his life is in the least danger. I cannot but agree with my late lamented friend Dr Armstrong, when he stated that "pure surgery is like a vampire, whose daily food is human blood," and deprecate the conduct of those pure surgeons who boast of enjoying immense wealth from medical, as well as surgical practice, and at the same time do not blush to confess their ignorance of what may be called medical pathology; nay, who even decry every part of the profession, but the practice of pure surgery. With regard to the great doctors of London, Mr Abernethy used to tell his pupils what they do and say about erysipelas. "I will tell you (said he) what the *doctors* say about that; they say you had better not meddle with it at all. You may powder it a little if you please, but do not attempt to repel it, for if you do, you will have it affect some other part, perhaps some affection of a vital organ may take place. Now this is true enough, (continued he,) for if you try to drive it away, if you put on your cold washes, or play any of your surgical tricks, why, you have a metastasis as they call it, and the man dies!!"

General bleeding was practised in erysipelas by Sydenham, and has since been followed by many practitioners; but either they have not been able to support the practice by sound reasoning, or bleeding has been injudiciously employed, and has therefore frequently fallen into disrepute. Bateman says in his Synopsis, page 131. "Blood-letting, which has been recommended as the principal remedy for the acute erysipelas, is seldom requisite; and unless there is considerable tendency

to delirium or coma, cannot be repeated with advantage, at least in London, and other large towns." "Venæsection (says Mason Good) was formerly recommended, and has been so of late by a *few writers*, but upon mistaken principles. I can conceive few cases in which it can be serviceable, and the application of leeches always exasperates the efflorescence."

I know no remedy so decidedly and immediately efficacious as general bleeding, if it be performed sufficiently early in the attack, and in constitutions not greatly debilitated by previous disease or bad habits: Whereas nothing but bad consequences can be expected to result from general bleeding in erysipelas, when the disease, having passed its first stage, is about to terminate in extensive suppuration, or in gangrene; or when it has taken place towards the termination of an acute or chronic inflammation of a vital organ, or at the termination of fevers. General bleeding may be attended also with bad consequences when employed in the following circumstances. 1. When the bleeding is not carried far enough to arrest the disease, at the same time that it destroys much strength. 2. When not followed up at a sufficiently short interval by a second general bleeding,—a local abstraction of blood,—or by purgatives, contra-stimulants, &c.

In the year 1824, I was requested to see a young man, residing near Leith Fort, who had part of the leg and the whole of the thigh affected with erysipelatous inflammation, the disease rapidly extending over the abdomen. The part affected was very red, painful, and tumefied. The constitutional symptoms were severe. The disease was attributed to his having knocked his knee against the edge of a grate; no contusion was to be perceived, but he stated, that for some time he had been unwell, feeling drowsy through the day, and restless at night, being often chilly, with want of appetite, and other symptoms of impaired health. He had been thus affected for perhaps ten days or a fortnight before the slight accident.

A vein was immediately opened, and about twenty ounces of blood abstracted, when a tendency to syncope took place, and the arm was tied up. Upon looking at the inflamed part immediately after the bleeding, no trace of redness could be observed, except in a circle of about two inches round the part

on which the blow had been received. Dr T. P. Lucas, now in the Royal Artillery, who was present at the time, cannot forget the impression this case made upon his mind. The treatment was followed up by antimony, laxatives, and the antiphlogistic regimen. A small abscess was opened in the course of two days after the bleeding, and the patient made a rapid recovery.

A hard-working woman, aged 70, frequently much exposed during laborious occupation as a water-carrier,* was seized, in December 1823, with what she called a severe cold. Her voice was altered; she had a cough, severe headache, sickness, and oppression at the præcordia, together with constant chilliness. These symptoms existed for some days, attended by loss of appetite, and want of sleep; but she thought they would wear away. At length she felt heat and acute pain in the integuments of the upper part of the face and head; general swelling soon followed, severely affecting the ears, which were quite hard to the touch. Even those symptoms were allowed to continue for three days, before she applied to my Dispensary for advice, when at length the symptoms became alarming, and the night previous to my seeing her, she was delirious. I found her labouring under great headache, general oppression, and fever. The skin was hot and dry; tongue loaded; thirst; pulse quick, and hard; together with considerable prostration of strength. One of my pupils (Dr Henry Lucas,) was requested to bleed her to the near approach of syncope; but not having succeeded in making a large orifice, and being perhaps rather afraid to take away much blood from a woman of her advanced age, he did not bleed her so as to make any impression on the disease, or upon the constitution; but he came immediately to inform me of his proceedings. Another gentleman, who was further advanced in the profession, (Mr Munro,) returned with Dr Lucas, and bled the patient till syncope took place. The swelling and redness of the parts immediately disappeared; the thickening of the ear only being left, but which went off in the course of a day or two. The general oppression, fever, &c. were also imme-

* The last of her class—the old "*water cadies*" of Edinburgh.

diately subdued—passage was obtained from her bowels before bed-time, when she got a large opiate ; she passed a good night. A solution of tartrate of antimony was given to act as a contra-stimulant, but of this she took only two doses. In four days she was convalescent, walking about the house ; made an excellent recovery.

Many important cases could be quoted, shewing similar results even in some instances where fears were entertained that the disease had advanced too far, from the appearances of debility under which the patients laboured. I have never experienced bad effects from opening a vein ; but care has always been taken to restrict the employment of this remedy according to the circumstances already noticed.

The application of leeches upon the inflamed part stands next in importance to general bleeding. Their number is to be regulated by the age and constitution of the patient, and also by the intensity, extent, and duration of the disease :—to an adult with ordinary strength, I would scarcely think of applying fewer than twelve or eighteen. This practice I have been in the habit of adopting ever since the year 1811, and with uniform success. But I apply them only when the disease is in its first stage, and, contrary to the predictions of many individuals, neither ulceration nor mortification have ever ensued. Medical gentlemen have seen the patients twenty-four hours after the application of leeches, when they could scarcely see marks of the bites. Previously they did not believe that any, except bad consequences, could ensue from such practice.

The application of leeches possesses advantages over scarifications in the first stage of erysipelas, and before either hardness of the skin or suppuration has taken place. More blood can be evacuated by the leeches, unless the incisions be made very deep, and patients will be more easily persuaded to allow the application of the leeches, than to have scarifications made. But in the other circumstances already mentioned, viz. the hardness of the part, or the existence of matter, the knife is to be used in preference. Should suppuration have taken place beneath a fascia, the incisions ought to be extensive, in order to give it free vent ; but I have seen profuse hemorrhage on several occasions from punctures, which could

not be restrained. The patients would, I believe, have died of the disease in any circumstances; but they began to sink immediately, and never recovered the loss of blood. In one of these patients, the part was carefully examined by the late Dr Dease, Surgeon to the Forces, and Mr Marshall, now Assistant Surgeon in the 87th Regiment, and, I believe, my learned and facetious friend, the late Surgeon Martindale of the 17th foot, with a view to discover if any large vessel had been wounded, but none could be found. Indeed we thought it would be so, and that the dark-coloured blood which flowed in a large stream from the wound, had been previously effused into the cellular tissue.

It is necessary to obtain free motions from the bowels, at first, by purgative medicines, and this may be subsequently effected by the use of antimony, which cannot be too highly extolled, from the effects it produces as a contra-stimulant in this disease. It is a remedy which may be frequently trusted to exclusively in very slight cases of erysipelas, where there is no headache, delirium, difficulty of breathing, or oppression at the præcordia, no pain on pressure in the abdomen, and no diarrhœa. The reader will therefore perceive that I neither think it necessary to bleed, nor to apply leeches, unless compelled by the constitutional symptoms, or the severe pain in the inflamed part. In many cases which fall under my notice, where an internal organ is suffering from diseased action, I trust to the leeches without having recourse to general bleeding, particularly when afraid that the disease may be too far advanced for the lancet.

Opiates are often of considerable benefit in erysipelas, although they have aggravated the external irritation in several instances in which they have been prescribed, and particularly in one case where the disease affected the whole body. The use of opiates appears to be most advantageous in cases which have passed into suppuration or mortification, but in which there is no tendency to coma. Some practitioners have great faith in emetics; but they seem to be serviceable in very recent cases only, where the disease depends upon some acrid or indigestible substance taken into the stomach; and by the

speedy evacuation of which, the progress of the erysipelas will in many instances be checked.

Blisters applied to the part affected have, I understand, been much used in France, where they are highly extolled; but I cannot speak from my own experience of them.

With respect to tonics and stimulants, there can be no doubt of the great advantages occasionally derived from their employment in certain cases, where the disease is so far advanced before medical aid is obtained, that the strength and vital powers have begun to sink—where suppuration has taken place, and the matter already evacuated—or where dead parts are undergoing the process of separation from the living.

The best local applications are warm fomentations in the first instance, and should the part shew a tendency to suppurate, light poultices may be applied alternately with fomentations. Cold astringent applications and evaporating lotions will sometimes be found to soothe the patient's sufferings, by removing the pungent heat for the time. I would recommend, however, that they should not be used until the bowels have been well opened, or till bleeding, and other antiphlogistic means, have been employed. Speaking of cold applications, Renauldin (Dic. des Sc. Med. p. 266,) declares they ought to be entirely proscribed, and that he could cite many examples of their baneful effects; and he actually quotes such instances on the authority of Hagendorn, Hoffman, and Fabricius ab Aquapendente. In truth, it will be seen from the preceding statements, that erysipelas must be treated upon very different pathological principles from those stated in the London Medical and Physical Journal, by Mr Earle, who considers erysipelas to be "*essentially an affection of the skin.*" I shall continue to quote the opinion of this clever Surgeon till he adopts wiser views, should he continue to anathematize me in every number of the Medical Gazette.

CHAP. III.

PAPULAR DISEASES.

Under this head I shall speak of the diseases which Willan has termed Strofulus, Lichen, and Prurigo, without splitting them into the same number of varieties.

Willan has divided Strofulus into five species, viz. S. intertinctus, S. albidus, S. confertus, S. volaticus, S. candidus; but I shall not treat of them separately, because they are not, even according to Bateman, "very important objects of medical practice."

With respect to the second class, Lichen, I shall speak of it also under one head, as Bateman himself admits, that "there is scarcely any limit to the varieties of these papular affections." Were I to follow the artificial classification, I should have to treat of Lichen simplex, L. pilaris, L. circumscriptus, L. agrius, L. lividus, L. tropicus, L. urticatus.

As to the third class of this order, I shall describe only one variety, Prurigo, instead of four or five, as the same treatment is to be followed in all, whether it occur in youth or old age, upon the neck or *pudenda muliebris*.

By the term papular eruption, a number of small elevations under the cuticle is meant, generally having an inflamed base, sometimes, although seldom, containing a fluid, or suppurating, and commonly terminating in desquamation of the cuticle.

Strofulus.

Strofulus is a papular affection of the skin, to which infants and children are liable, and in common language, is known by the term "gum;"—if it is reddish, it is called "the red gum,"

if whitish, "the white gum," and so on. It is a form of eruption depending either upon irritation in the primæ viæ, or upon teething, and is most commonly met with in those infants who are fed with the spoon too early.

Treatment of Strofulus.—I have always observed that those children thrive best, and have fewest complaints, who get least physic, and who are brought up at the breast; I would therefore strongly recommend that in general spoon-meat should not be given to children for the first three months, and physic as rarely as possible. Should this eruption appear, care must be taken not to expose the patient to cold or damp air, and ablutions with tepid water are to be had recourse to twice a-day. When the child is asleep, it should not be covered with too many bed-clothes: and should it appear during the period of dentition, the gums must be scarified occasionally. If fever take place, the usual remedies should be exhibited, and the diet regulated.

Lichen.

This disease is to be regarded as strofulus occurring in adults. Dr Willan has defined it, "an extensive eruption of papulæ affecting adults, connected with internal disorder, usually terminating in scurf; recurrent, not contagious." I have no doubt that the different varieties of lichen depend partly upon gastro-intestinal irritation, and partly upon determination of blood to the surface, as occurs during warm weather, and when the body is over-heated, either by too much clothing or violent exercise. The great characteristic of the disease, is tingling or itching, aggravated upon going to bed; and the purest example of it is to be found in that variety which is called "prickly heat." It sometimes occurs in old age, when it is attributed to debility of constitution, which, I am convinced from experience, is not so frequently the cause as indigestible food.

Treatment of Lichen.—Regular attention to the bowels, avoiding every acrid and indigestible kind of food, and violent exercise, together with the use of the tepid bath, and the local application of common vinegar, or the juice of limes, constitute the treatment.

Prurigo.

This is a disease resembling Lichen, excepting that the papulæ possess more of a chronic than an acute character, and that the itching is more violent and intolerable; indeed, I have considerable doubts whether it ought not to be considered as an aggravated form of Lichen. The chief form under which we see the complaint, is in females in and about the labia pudendi; the desire to relieve the sensation by scratching is very difficult to suppress, and it is increased by exposure to heat, the action of walking, &c. It may be produced in this region of the body by the causes already mentioned when treating of Lichen, as also by ascarides in the rectum, and the acrid nature of discharges from the vagina.

Treatment of Prurigo.—The general principles of treatment must be the same as those described under the last head, with the following additions, when it attacks the parts of generation,—viz. frequent ablutions, sometimes using astringent washes, and occasionally throwing them into the vagina; and if there be much irritation and swelling, the recumbent posture is very necessary. In such cases, particularly when the inflammation of the part runs high, I have seen the best effects from one general bleeding. If ascarides be suspected to exist in the rectum, enemata with turpentine should be employed. In extreme cases, when the parts are very tender, considerable benefit has been derived from the application of a solution of the nitrate of silver to the part, of the strength of six grains to the ounce. An alterative course of mercury, either in the form of blue-pill, or that which goes under the denomination of Plumber's, is sometimes beneficial, as is also Harrogate water. A minute examination should be made to ascertain if any pediculi exist, which often create intolerable itching, and red papular elevations. The best method of destroying these is by applying a little calomel, mixed with hogslard, or the precipitate produced by throwing calomel into lime-water.

CHAP. IV.

PUSTULAR DISEASES.

In this class I shall treat of impetigo, porrigo, scabies, ecthyma, rupia, acne, and sycosis. The last two have been included by Willan in his seventh order Tubercula; and I have excluded one disease which he has comprehended in his order Pustulæ, viz. variola, because it ought to be classed among the fevers with eruptions, where I have placed it in the first volume.

A pustule is known by an elevation of the cuticle, with an inflamed base, containing pus, which is formed sooner or later, if the disease be not cut short.

Impetigo.

Impetigo may be regarded as a pustular eruption, the pustules being small, irregularly circumscribed, with but a slight elevation of the cuticle, and terminating in scabs. It is produced and accompanied by active inflammation and considerable irritation of the parts affected, which terminate in a chronic action of the vessels engaged in the disease. In the first stage, the eruption is vesicular, but, like small-pox and other similar diseases, it becomes pustular, and terminates either in the formation of scales, presenting an appearance like *lepra vulgaris*, and *psoriasis*, or when there is a number of pustules accumulated in one part; the matter is discharged, and dries, forming extensive scabs, which irritate the surrounding parts, particularly if removed incautiously. Willan and Bateman describe five varieties, viz. Impetigo Figurata—I. Sparsa—I. Erysipelatodes—I. Scabida—I. Rodens; four of which differ from each other only in the intensity and extent of the diseased

action, and the shape and distribution of the pustules; and they seem to have confounded this disease with scabies. Their fifth variety, the "*impetigo rodens*," Bateman admits he has never seen, but describes it to be a cancerous ulceration extending deeply and extensively, and which is said to commence with a cluster of pustules. Impetiginous disorders are not necessarily accompanied by fever, neither are they contagious, nor, it is said, communicable by inoculation.

Causes of Impetigo.—Dr Willan believes, that this disease is frequently preceded by constitutional disorder, such as pains in the head and stomach; but Mr Plumbe is of opinion, that when these exist, they are owing to accidental circumstances; and that the disease is always occasioned by local irritation, such as the application of alkali to the skin, &c. My experience leads me rather to agree with Dr Willan, admitting at the same time, that the exciting cause may be, in many cases, fairly attributed to the local application of substances which irritate the skin, as sugar, lime, pepper, &c., but which would produce no local effects, were the constitution not strongly predisposed to cuticular inflammation. The predisposition is in general to be sought for in the condition of the mucous membranes, and sometimes in the functions of the liver, kidneys, &c.

Treatment of Impetigo.—Fomentations, when there is much inflammation, together with the tepid bath, gentle laxatives repeated daily, attention to the diet, and avoiding irritating the part by scratching, and the rough or incautious removal of the scabs, are all points of importance. At the same time, care should be taken to avoid even a chance of the re-application of the irritating cause. In the acute stage, I have often seen it serviceable to take a little blood from the part, either by means of a fine pointed lancet, or a sharp needle; and if pus be formed, it may be evacuated by the same means with benefit. When the inflammation becomes chronic, stimulating and astringent washes may be used, such as lime juice, common vinegar, solutions of the sulphates of zinc, alumina, or copper, or even, what is still better if there be much pain and irritation, of the nitrate of silver. Cases may occur in which certain well-known ointments, as those of the acetate of

lead, nitrate of mercury, &c. may be found useful; but I have generally observed that greasy applications rather retard the cure.

Porrigo.

Porrigo is a contagious pustular disease, which principally affects the young, and may be divided into two kinds, one of which is mild, depending upon some constitutional irritation, and affecting the head and face of children who are generally of a full habit of body. The other variety affects the scalp, often extensively, and is in particular constitutions, and in circumstances of neglect, very intractable.

I shall first treat of all the mild varieties, under the term *porrigo larvalis*, (commonly called *crusta lactea,*) for notwithstanding what has been stated by authors, the affection called *porrigo larvalis*, and *porrigo favosa*, differ so very little, either in their causes or in their appearance, that I consider it unnecessary to give a separate description of each.

I shall afterwards notice the true ring-worm of the scalp, which is termed by some authors simply *Porrigo*, by others *P. furfurans*, *P. lupinosa*, *P. scutulata*.

" The porrigo (says Bateman) is a contagious disease, principally characterized by an eruption of the pustules, denominated *favi* and *achores*, unaccompanied with fever. The several appearances which the disorder assumes, are reducible to five or six specific forms.

1. The porrigo *larvalis*, or *crusta lactea* of authors, is almost exclusively a disease of infancy. It commonly appears first on the forehead and cheeks, in an eruption of numerous minute and whitish *achores*, which are crowded together upon a red surface. These pustules soon break, and discharge a viscid fluid, which concretes into thin yellowish scabs. As the pustular patches spread, the discharge is renewed, and continues also from beneath the scabs, increasing their thickness and extent, until the forehead, cheeks, and even the whole face, become enveloped, as by a mask, (whence the epithet *larvalis*,) the eye-lids and nose alone remaining exempt from the incrustation. The eruption is liable, however, to considerable variation in its course; the discharge being

sometimes profuse, and the surface red and excoriated,—and at other times scarcely perceptible, so that the surface remains covered with a dry and brown scab. When the scab ultimately falls off, and ceases to be renewed, a red, elevated, and tender cuticle, marked with deep lines, and exfoliating several times, is left behind; differing from that which succeeds to impetigo, inasmuch as it does not crack and form deep fissures.

"Smaller patches of the disease not unfrequently appear about the neck and breast, and sometimes on the extremities; and the ears and scalp are usually affected in the course of its progress. In general, the health of the child is not materially affected, especially when the eruption does not appear in the early period of lactation; but it is always accompanied with considerable itching and irritation, which, in young infants, often greatly diminish the natural sleep, and disturb the digestion. Whence much debility sometimes ensues; the eyes and eye-lids become inflamed, and purulent discharges take place from them, and from the ears; the parotid, and subsequently the mesenteric glands, become inflamed; and marasmus, with diarrhœa and hectic, cut off the patient.

"Most commonly, however, the disease terminates favourably, though its duration is often long and uncertain. It sometimes puts on a healing appearance for a time, and then returns with severity. Sometimes it disappears spontaneously soon after weaning, or after the cutting of the first teeth; and sometimes it will continue from two or three months, to a year and a half, or even longer. It is remarkable, however, that whatever excoriation may be produced, no permanent deformity ensues." (Bateman on Cutaneous Diseases, p. 158.)

The only additional observation I shall make respecting the *porrigo favosa*, is, that it occurs in adults, particularly in females, and affects principally the scalp, the hair falling off, and becoming of a lighter colour. In both affections, small glands in the neck and behind the ears enlarge, and sometimes suppurate. The worst cases of the disease called porrigo furfurans occur after fevers, particularly the eruptive, and also

when a scurfy state of the scalp has existed for a considerable time previous to the attack.

Treatment of the milder forms of Porrigo.—As these diseases occur under some constitutional irritation, local applications are not beneficial, till the original causes are removed. If they depend on teething, great attention should be paid to relieve the irritation of the gums, by dividing them freely as the teeth advance; and also to the diet, that it be light and easy of digestion; as well as to keep the bowels in a proper state. Every care must be taken to keep the parts clean, and to avoid the application of all ointments, at least in the first stages, when there is acute inflammation. When the inflammation runs high, immediate advantage may be derived from leeches; and I have had no hesitation in applying them to the face. When the inflammation is considerable, but does not run so high as to require leeching, benefit is obtained by bathing the parts with warm saturnine lotions. Should the scabs, from neglect or other causes, become extensive or hard, they should be carefully removed by means of tepid fomentations or poultices. Under the best treatment, the disease will return with each pair of teeth; and not only does it trouble children when getting their milk-teeth, but also occasionally when cutting the permanent ones. In many of the cases which occur after eruptive and other fevers, the state of the tongue, the thirst, the appearance of the secretions, and the tumefaction and tenderness of the abdomen, evince that there is considerable irritation or inflammation of the mucous membrane of the stomach and bowels. In such circumstances the patient may be placed under the following treatment.—Gentle aromatic laxatives, repeated according to the state of the bowels; a diet consisting of bread and mild, arrow root, sago, whey, &c.; the application of leeches to the abdomen; the tepid bath; and sometimes an eruption of pustules may be produced upon the belly by means of antimony ointment.

Mr Plumbe states, at page 121. of his excellent work on "Diseases of the Skin," that, in much-neglected cases, a perfect cure has seldom been produced, except when "the operation of plucking the hair from the diseased part has been diligently followed up, and every other possible means taken

to check inflammatory action." I must confess that such cases are very rare in this country, so much so, that in my Dispensary practice for many years, the patients averaging about four thousand annually, no such intractable instances have occurred, notwithstanding the reputation for dirtiness which the Scotch have acquired in the minds of their English neighbours!

Appearances of the most severe forms of Porrigo.—The following description of the disease is compiled from the work of Mr Plumbe, who has devoted much time and attention to affections of the skin, and more particularly to this disease.

"The degree of obstinacy evinced by a larger portion of cases of this disease, the interruption it frequently occasions to the education of children, (its known infectious nature preventing their admission into schools,) combine with other circumstances to give it a peculiar interest." Mr Plumbe thinks that there are two particular forms of the disease which produce all the varieties mentioned by authors, and that both occasionally arise spontaneously, or are the result of infection, and that the one may produce the other.

In the first form, the hair falls off, leaving sometimes, but not always, circular patches, the margin being clearly defined, and exhibiting a line of scurf considerably thicker than that in the centre. In the centre of the spots, the skin is scurfy, and the hair thinned, and easily extracted by the finger and thumb. What remains of it, is unhealthy in appearance, some hairs being thin and delicate, others being the remains or stumps of those which have been broken, or dropped off. There is a downy substance just rising above, and mixing with the scurf, evidently formed by feeble attempts at the production of new hair. The spots vary in number and in dimensions, and on the hair being removed, exhibit a red and slightly inflamed appearance. Here and there this form of the disease will be observed in an incipient state, and is known by small discolourations of a yellowish red colour before the hair begins to drop off. The spots shew no pustular appearance at the margins, and enlarge slowly in diameter till they unite; but if stimuli, in the form of ointments, have been applied, a more active condition often takes place, and minute achores form

not only on the margins, but on other parts, accompanied by irritation, heat, and itching. The pustules discharge their contents, and form scabs of a light straw colour, under which extensive abrasions of the cutis are sometimes found.

Spots of the same nature may be seen on different parts of the body, at the commencement of the affection of the scalp, and for some time after, but they generally disappear before its termination.

This is the usual appearance of the disease in children, whose general health is unimpaired, and skin not particularly irritable; but in opposite conditions, small pustules, instead of vesicles, are perceived, which dry, and form a circular scab. The ring of pustules enlarging in the same manner as that of the vesicles, and their contents drying, and adhering to the margin of the scab already formed, increase its bulk and diameter. The scab becomes a source of increased irritation, and the pustules under its margin are enlarged and more elevated, raising its edges, and giving the appearance of the P. lupinosa.

The other variety of Porrigo never assumes the circular, circumscribed form of the one just described; but is diffused over a considerable space, and is pustular from the beginning on the scalp. It can, like the other, be identified with an affection of the skin of other parts, which is partly vesicular, and partly consists of papulæ of different sizes.

The pustules are thickly dispersed over the head, and a hair occupies the centre of each, the skin in the interstices being red and inflamed. This form of the disease is accompanied by fever and irritation; and derangement of the digestive organs will be found to have existed, generally, for a long time previous. The absorbent glands at the back of the head and those of the neck inflame, and sometimes, though rarely, suppurate. Inflammation of the cellular membrane, under the scalp, takes place here and there, forming abscesses which burst and soon heal, but leave the parts which they occupied bald ever after.

As the pustules are ruptured, and their contents distributed over the adjacent parts of the scalp, these parts become inoculated, the disease spreads, and yellowish scabs are formed of

an unpleasant odour and aspect, which, unless frequent ablution be had recourse to, rapidly accumulate.

These descriptions, according to Mr Plumbe, comprehend every thing essential to the history of porrigo (except as regards the P. favosa, and P. larvalis,) as it occurs in the better classes of society, where cleanliness is particularly attended to, the general health not materially injured, and where the disease is not aggravated, and its character changed, by the improper use of stimulant applications; and, under these circumstances, both will frequently disappear spontaneously by the continued employment of ablution. But, under other circumstances, both forms may terminate in that most obstinate and intractable one—the P. furfurans of Bateman, which seems to be the result of long-continued irritation. Its principal distinguishing feature is the copious production and rapid exfoliation of morbid cuticle, which, from its branny form, is readily entangled by the adhesive matter of the pustules forming a sort of cement. The union of the morbid cuticle, which is secreted in great quantities, with the matter of the pustules, increases the mischief by matting the hair together, and preventing the application of remedies. Upon examination in this state, after cleaning the scalp by the long-continued use of warm water, the interstices of the hair exhibit an erythematous redness, and appear altogether deprived of cuticle; the passages by which the hairs arrive at the surface are enlarged, the covering which they receive from the cuticle is destroyed, and its place occupied by a glutinous fluid, which may be seen exuding, and surrounding each individual hair. The quantity of this secretion varies at different times, and the proportion which it bears to that of the exfoliations of the cuticle, determines the consistence and adhesiveness of the diseased part; and hence, when small in quantity, the latter is more dry, harsh, and shining.

In this state of the disease, and also under all other circumstances, when the accumulated secretions are considerable in quantity, the term "scalded head" is generally applied.

Treatment of the most severe forms of Porrigo.—Cleanliness, and preventing the formation of hard scabs, are of still more importance in the cases now under consideration than in those

of a milder character ; and when scales have formed, they are to be softened by means of fomentations and a poultice of lintseed meal. Gentle mercurial laxatives are also serviceable, assisted by the daily use of Harrogate water. The diet must depend entirely upon the state of the constitution, as to whether it ought to be very nourishing and somewhat stimulating, or the reverse ; but in all cases the stomach must not be overloaded, and the diet should be dry. The use of the tepid bath will be found very advantageous.

It would be impossible to give an account of all the local remedies which have been used for the cure of Porrigo ; therefore I shall merely enumerate some of them. Coarse soft soap, sulphur ointment, or both conjoined ; ointment of the coculus indicus—of the oxide of zinc—of calomel—of the red oxide of mercury—of nitrate of mercury—of tar—of nitrous acid—muriate of ammonia—of acetate of lead and opium—hellebore—turpentine—mustard—stavesacre—dulcamara—black pepper—cayenne pepper—galls—savine, &c. Lotions of acetate of lead, sulphates of zinc and copper, infusion of tobacco and tar-water ; equal parts of the spirits of wine and oil ; and also the same proportions of vinegar and oil, muriate of mercury, in alcohol, in water, and lime water ; the black wash, a solution of nitrate of silver, and tincture of the muriate of iron ; blisters. Some recommend the part to be powdered with sulphur ; the direct application of a stick of lunar caustic ; adhesive plaster ; the oil-silk cap, and pitch cap.

In addition to the constitutional remedies for the cure of the true vesicular circumscribed ring-worm of the scalp, I find few cases resist the nitrate of silver, applied by rubbing it carefully over all the diseased parts, and re-applied as soon as the dark-coloured exfoliation separates.

In the other form of the disease, the formation of scabs will be prevented, at least in a considerable degree, by wearing a wax-cloth or an oil-skin cap ; when this is done, however, the patient should have two or three changes of caps for the sake of cleanliness, and to avoid an almost insufferable smell. Mr Plumbe has been very successful, by removing the roots of the hair with a pair of pincers, which is a merciful alternative for the old pitch cap ; and should any local

inflammation be excited, he recommends the use of a cooling lotion.

Scabies or Itch.

This disease, as Bateman admits, almost bids defiance to any attempt to reduce it to an artificial classification, as it appears sometimes in the form of pustules, vesicles, and papulæ, the one variety often running into the other. In all of these forms it is accompanied by a constant and almost irresistible itching. It is contagious, but is not attended with fever; all parts of the body are liable to it, except perhaps the head, particularly the wrists, between the fingers, the flexions of the joints, &c.

Causes of Scabies.—It has been universally attributed to contagion, but it appears to me that this cause has its limits, and that it depends as much, if not more, upon a state of the constitution the consequence of diet. It seems to be almost endemic in some remote districts of this country, in Ireland, and in France, where sulphur, the sovereign remedy, has no effect in exterminating it, because it is an eruption produced by unwholesome food. In the army it is rare to see an old soldier affected with itch; the subjects mostly affected are recruits, recently joined, who had either brought the disease into His Majesty's service with them, or had caught it from other recruits, they themselves being predisposed to it by a change of diet and habits.

Treatment of Scabies.—This is so well known, that medical men are rarely applied to. The specific powers of sulphur, applied externally in the form of ointment, and taken internally in half-dram doses with an equal weight of cream of tartar, soon cure the affection. Three or four days are generally sufficient. Other remedies have also been extolled, as the root of white hellebore, diluted sulphuric acid, and the muriate of mercury, all of which have been used with benefit. In obstinate cases, Dr Robertson has seen much benefit arise from mixing half an ounce of powder of white hellebore with four ounces of sulphur ointment.

Ecthyma and Rupia.

Perfectly agreeing with Mr Plumbe, that these are merely varieties of the same disease, I have thought it right to consider them together, particularly as they occur under the same states of constitution, and are to be treated in the same manner. Indeed, Bateman observes, when treating of rupia, (at p. 237.) "For practical purposes it might have been included with the ecthymata, as it occurs under similar circumstances with the ecthyma luridum; but the different *form* of the eruption, for the sake of *consistency of language*, rendered the separation necessary." According to Bateman, we have five species of ecthyma, and three of rupia, the one differing from the other only as to the age of the patient, and the colour and form which the eruption takes. Ecthyma and rupia may be defined to consist of an eruption of inflamed pustules, commonly of a large size, raised on a hard circular base, of a vivid red colour, and succeeded by a thick, hard, dark-coloured scab, usually distinct, and arising at a distance from each other. This kind of eruption is indicative of some state of distress under which the constitution labours, and though it is not attended with actual fever, yet a degree of general irritation or erythism is often present with it. Occasionally the eruption is confined to the trunk, but sometimes spreads to other parts, seldom, however, being seen on the face or hands.

Causes of Ecthyma and Rupia.—According to Mr Plumbe, "Anxiety of mind, accompanied by great bodily exertion, fatigue, low living, the debilitating effects of previous fever; in short, any thing reducing the energies of the constitution beyond a certain extent, is capable of producing it. Almost the whole of the cases which I have had an opportunity of observing, have occurred in young people; the majority in young men, who, with constitutions originally not of the strongest class, had imprudently indulged in excesses and irregularities to a great extent, accompanied by privation of rest and other depressing circumstances. Very frequently, in such cases, it is mistaken for a venereal eruption, and the patient himself is readily made to believe in an opinion which his habits have made so probable. If mercury be had re-

course to under these circumstances, the disease is much aggravated," &c.—P. 439.

Pathology.—From a careful consideration of all the cases of this kind of disease which have fallen under my notice, as well as from what I have read, I cannot help regarding the pustules above described as efforts of nature to translate disease to the surface; that they depend upon irritation, and the remains of inflammation in the mucous membranes generally; and that they are not produced by mere debility of constitution, as is generally supposed.

Treatment of Ecthyma and Rupia.—According to the above views, the treatment is simple, and consists in the daily use of the tepid bath; mild laxatives, occasionally combined with a mercurial preparation; light nourishing diet, avoiding beef tea, and all other forms of animal food, till the tongue improves in appearance, and the stools look more natural. In the course of some days, the sulphate of quinine will be found very serviceable; but it is not to be employed until the tongue becomes quite clean. On some occasions I have seen benefit derived from a blister applied on the lower part of the chest, more particularly when the sound of respiration announced the presence of a bronchitic affection.

A few years ago, a gentleman was under my care with the worst form of rupia I had ever seen; every part of the surface of the body was affected. He went to London for advice, and consulted several eminent medical gentlemen. Every one condemned the employment of mercury in any form. I was decidedly opposed to it. He remained in a bad state for two years, when he was seized with iritis in a severe manner. Dr Robertson was then consulted, who placed him under an immediate course of mercury, to affect the system rapidly. As soon as the mouth began to shew the usual effect of mercurial action, the disease of the skin began to decline, as well as that of the eye, and the patient was soon cured.

Acne.

Bateman has divided this simple disease into four varieties, viz. acne simplex, punctata, indurata, and rosacea, thus creat-

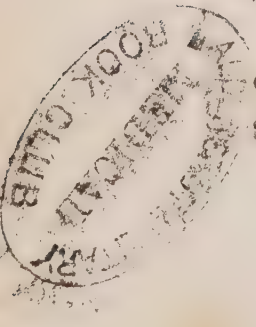
ing distinctions without differences, the only effect of which is to embarrass students. This affection has also obtained the name of slow suppurating tubercles; and it appears to me, that the reason why it is called a tubercle, and classed as such in all the books on cutaneous diseases, except Mr Plumbe's, is that a hard, painful, circumscribed body is felt under the skin, which is perceived for a considerable period, now and then becoming painful, and continuing in this state for many months, and at last suppurating, perhaps only from having been frequently irritated.

There cannot be the least doubt, that the pathological views of Mr Plumbe concerning acne are quite correct. They accord with the opinions upon which I have acted for a number of years, viz. that acne is a diseased condition of the sebaceous follicles. In the slighter cases, the sebaceous matter concretes, distends the follicle, irritates it, and produces inflammation; slight suppuration takes place, a pimple is formed, and sebaceous matter is discharged, with or without a small quantity of pus. In the severer cases a higher degree of inflammation is produced, involving the surrounding cutis; the suppuration is more extensive, and slower in its progress, and perhaps the part suppurates again and again until the follicle is emptied, or its structure is completely destroyed.

The parts chiefly affected are the forehead, the sides of the nose, and the shoulders. The age at which acne most frequently occurs is that of puberty, alike affecting males and females.

Causes of Acne.—Although acne be not preceded by fever, and notwithstanding that it seems to be produced by the sebaceous matter, yet it is not difficult to shew, that it is connected with the state of the constitution, not only from the age at which it occurs, and the bad habits of drinking and gormandizing which frequently induce it, but also from the state of the tongue and the digestive organs. It occurs likewise under diseased states of menstruation, and under sedentary habits.

Treatment of Acne.—This may be divided, as in other cases of skin diseases, into constitutional and local. The first consists in attention to the bowels and diet, and taking all the



ordinary means to improve the powers of digestion, including the warm bath. The local treatment consists in avoiding stimulating applications during the inflammatory stage, and puncturing the part, to prevent suppuration, and allow a free passage to the sebaceous matter, without injuring or destroying the follicular structure. This has the effect, also, of preventing any permanent hardness, which so frequently happens when the process of suppuration is very slow, or when it does not take place at all. If matter have formed, the lancet should be used to allow its escape, and gentle pressure applied at the same time to force out the hard sebaceous matter. I know many females who bear marks from the disease, before the plan of early puncturing the pimples was adopted. Individuals liable to this affection, should pay scrupulous attention to diet, and to the state of the bowels; they should employ friction with a flesh-brush, a piece of flannel, or a soft towel, and use the warm bath twice or thrice a-week, and daily ablution.

Sycosis.

This affection scarcely deserves a separate consideration from acne; I agree with Mr Plumbe, that it is produced by follicular obstruction, and consequent inflammation occurring in parts covered with hair; and its principal seats are the chin in men, and the head in both sexes, particularly the margin of the hairy scalp, in the occiput, around the forehead and temples, and near the external ear, which is also liable to be included in the disease. Sycosis is more troublesome than acne, as are all eruptive diseases situated on parts covered with hair.

Treatment of Sycosis.—The constitutional and local treatment recommended in acne must be followed up, with this addition in severe cases, that not only is the point of the lancet necessary, but the forceps also, to extract any hair which may appear to be a source of irritation; and it is particularly necessary on the chin, where on many occasions the root of the hair itself will be found in a diseased thickened state. The extraction is seldom attended with any pain.

CHAP. V.

SQUAMOUS DISEASES.

Under this designation I shall consider the following diseases,—Lepra, Psoriasis, and Ptyriasis, which latter I might perhaps without any disadvantage altogether pass over, because I consider it as the mildest form of lepra. I have not included ichthyosis, or fish-skin disease, because it is exceedingly rare; it has the same pathology as lepra, and similar treatment is applicable to this affection. One form of it, ichthyosis cornea, is a surgical disease.

Lepra.

By this term is designated a disease exhibiting red, inflamed, elevated spots and patches, in many cases not larger than a split pea, which yield almost daily crops of scurf or scales, and is rarely, if ever, accompanied by a vesicular or pustular appearance, unless such formation be accidentally produced by roughly tearing out hairs. After seeing the disease once, the scales can never be mistaken for scabs formed by the drying of pustules or vesicles, unless the affection have run into the state called Psoriasis, which falls next to be described. Willan and Bateman have divided the disease into three species, viz. lepra vulgaris—alphoides—and nigricans. The first two ought to be regarded as different degrees, or perhaps rather stages, of the same affection; while the last species, nigricans, differs in the colour and state of the constitution at the time; and I heartily agree in the following remarks of Mr Plumbe: "That they may therefore be dispensed with, with advantage, is obvious, inasmuch as they have had their

share in creating the confusion elsewhere alluded to, and discouraging the student in the prosecution of his inquiries. It is to little purpose that preceding authors have expended so much time in investigating the confused records of ancient times, to determine what was meant by the term, and to ascertain the correct history of the disease, if new difficulties in its study are to be invented by encumbering it with useless and multiplied names," (page 128.) On looking minutely at the part affected, it is observed to have a shining hard surface, owing to a somewhat transparent, smooth, polished scale, which separates in a day or two, and to be encircled by a dry, red, and slightly elevated border. When the scales are removed, the skin underneath appears smooth, red, and shining, and generally free from cuticular lines. As the diseased spots extend, fresh scales are produced, having a somewhat different appearance from those formed at the beginning of the disease; they do not extend uniformly over the diseased surface in one continued scale, but separate more like scurf. The disease very generally commences on the extremities, at parts where the bones lie nearest the surface, but I have often observed the eruption appear first on the surface of the abdomen, breast, and shoulders. The head, face, and hands, often become involved in the disease, and in very severe cases the nails of the fingers and toes are much thickened, incurvated at the extremities, and sometimes fall off. When the disease covers a considerable portion of the body, a large quantity of scurf is found in the bed in the morning, which is rapidly reproduced.

More or less of an itching or a tingling sensation is experienced by the patient when heated by exercise, or in bed; but when the disease becomes extensive, with considerable inflammation, extreme soreness, stiffness, and sometimes severe pain are produced, more particularly at the flexures of the joints, where the skin often cracks, discharges serum, and in fact runs into the state termed Psoriasis. The parts likewise swell so much in these circumstances, that I have seen a limb fully more than a third above its natural circumference.

It is surprising to find Bateman stating, at page 28, that in the worst of these circumstances "there is no constitutional disturbance." If by this expression he means to say

that there is no fever, the statement is correct, but there is frequently considerable and severe *constitutional disturbance* without the existence of febrile symptoms; and when speaking of the causes of this disease, I shall endeavour to describe the actual constitutional derangements upon which the disease appears to depend.

Causes of Lepra.—Leprous disorders are very often met with among the poor in all countries, but they are more frequent and severe in warm climates, and in countries where the poor are most destitute. I do not believe that they originate in want of cleanliness, but certainly, when once produced, it renders them more intractable. All causes which have a tendency to produce functional diseases of the chylopoietic viscera may be ranked as causes of lepra in particular constitutions. Sometimes, and most frequently, it is produced by unwholesome and indigestible food, particularly such articles as yield little nourishment. Affections of the mind may likewise give rise to it. The rich are not exempt from this disease, and it frequently attacks those with gouty constitutions. For many years past, I have paid considerable attention to disorders of the skin, and a great many cases of lepra and psoriasis have fallen under my observation: gastro-intestinal irritation has been discovered in all the cases but one; and in that one, there were great mental anxiety and despondency, with hepatic derangement. There can be no doubt that the disease, in the first instance, is seated in the vessels of the cutis which are employed in producing the cuticle, and that its nature is inflammatory.

Treatment of Lepra.—In detailing the treatment, I shall describe the different plans which experience and pathological considerations have led me to follow with great success, and I shall notice these under different heads.

1. In all cases, it is necessary to attend to the bowels by gentle, but frequently repeated laxatives, occasionally combined with calomel, and assisted also by the daily use of Harrogate water. The diet must likewise, in all cases, be attended to; and it will be found that the disease often depends upon one particular article of diet, varying in different constitutions, as dried fish, shell-fish, salted meats, new bread, coarse and un-

wholesome bread, potatoes, onions, garlic, salads, cheese, oatmeal, sweet-meats, bitter almonds, nuts, various kinds of fruits, particularly if the skins or husks be swallowed, broths and soups, different kinds of malt liquors, cyder, wine, spirits, &c. Indeed the diet is of such vital consequence, that I consider it necessary in many obstinate cases to make my patient write down a daily list of every article which he has put into his stomach, so that, by comparing his condition with the food he has been using, we are, between us, able at last to detect those articles which disagree. It is also necessary to take care, that while the patient has sufficient clothing, his skin is not kept too hot; and I have sometimes found it of service to cause linen to be worn next the skin instead of flannel. When it can be managed, the inner garments should be changed daily, particularly in severe cases, and this is still more necessary when the disease takes on the appearance which constitutes psoriasis. When the patient goes to bed, care should be taken that his feet be warm, and that he be not over-heated by too many bed-clothes. The tepid bath should be used daily, or when that is inconvenient, the whole body should be sponged twice a-day with soap and warm water, or vinegar and water.

2. If the inflammation of the skin be very severe and extensive, I commence by taking blood from a vein in such quantity as may be necessary, attending to the state of the constitution as well as the extent of the inflammation, and afterwards proceed with the plan above described; and there are few cases which resist these means.

3. In old or very intractable cases, where these remedial means have been tried without success, recourse should be had to sulphurous baths and fumigations, which can scarcely be praised too highly; but they must not be used when the inflammation is acute. When these cannot be obtained, some benefit may be derived from the external application of Harrogate water, several times a-day.

4. In still more intractable cases, where the above remedies have failed, or where sulphur baths cannot be obtained, considerable benefit will be derived from the use of lime-juice, externally as well as internally; but I place more dependence on the employment of an alcoholic solution of the

oxy-muriate of mercury, in the proportion of four grains to the ounce, beginning with from five to ten drops twice or thrice a-day, and increasing each dose to twenty, thirty, or forty drops, of course attending at the same time to the diet, bowels, and clothing.

5. Should these plans fail, recourse is to be had to arsenic, which is placed last in the list of remedies, because its use is frequently attended by more constitutional disturbance. But I have seen it fail in cases where the other plans have afterwards succeeded. For some years past I have only had occasion to employ it twice, on both occasions without success: in one instance it was persevered in till the patient was nearly poisoned. Maddar or Madaar, an Indian remedy, was also tried in this case, but only with temporary benefit. Various ointments, such as that of tar, nitrate of mercury, and carron oil, have been employed, but according to my experience, not with much success.

A most injurious plan is followed by some, of putting all patients affected with lepra, and other skin diseases, on farinaceous food, with which they stuff themselves in such a manner as to increase the functional derangement of the stomach and bowels, thereby producing a more inveterate affection. Many instances of this kind of maltreatment fall annually under my care, in which a change to animal diet has generally effected a beneficial change in the character of the disease; an interesting case of this nature I shall soon notice, when treating of psoriasis. In addition to what has been said already respecting diet, it may be shortly remarked, that in cases where inflammation of the skin runs high, an abstemious diet should be recommended, but, generally speaking, a moderate quantity of animal food is necessary. In no case should the patient be allowed to *load* the stomach, and he should be cautioned particularly against taking more than a small tea-cup full of soup of any description; he must likewise altogether avoid taking that "animo-vegetable decoction," called Scotch broth. The tongue should be frequently examined as well as the stools, as from both of these we may draw conclusions respecting the effects of diet and medicines. Tonics are often serviceable,

as well as a moderate allowance of such stimuli as are found to agree best with the patient, and which he can afford.

Psoriasis.

According to Bateman, "Psoriasis or scaly tetter occurs under a considerable variety of forms, exhibiting, in common with lepra, more or less roughness, and scaliness of the cuticle, with redness underneath. It differs, however, from lepra in several respects. Sometimes the eruption is diffuse and continuous, and sometimes in separate patches of various sizes; but these are of an irregular figure, without the elevated border, the inflamed margin, and the oval or circular outline of the leprous patches: the surface under the scales is likewise much more tender and irritable in general, than in lepra; and the skin is often divided by rhagades, or deep fissures." And he might have added, that when the inflammation runs high, and extends deep into the substance of the cutis, there is often a very considerable discharge from these fissures, and even from the general surface, forming extensive scabs; but this, for the most part, never takes place except in mismanaged cases. I have seen the eruption leprous in one part of the limb, and psoriatic in another, particularly between the fingers, and at the flexures of the joints. Lepra may be converted into psoriasis by bad management, and particularly by the application of irritating substances to the diseased parts. Psoriasis may be converted into lepra by a general bleeding, thereby mitigating the local inflammation. From all the facts which experience has enabled me to collect, psoriasis is to be regarded as an aggravated form of lepra, and by treating it upon corresponding principles, I have been very successful in curing the affection.

Willan and Bateman have divided psoriasis into four varieties—viz. the *guttata—diffusa—gyrata*, and *inveterata;* but I shall avoid such distinctions, as no good practical results can be expected from them.

This disease, like lepra, may be very partial, but I have seen several cases where the whole of the extremities were covered with psoriasis, while the trunk of the body, the face, and the head, were affected with lepra. I shall now relate the case

recently alluded to, (p. 294.)—A gentleman of a healthy, strong constitution, accustomed to good living, and engaged in an extensive speculation, experienced a great and an unexpected reverse of fortune. Possessed of highly honourable feelings, he was determined to pay off every shilling of debt, by reducing his establishment, and altering his style of living, and, it is to be regretted, by denying himself many of the common necessaries of life. For upwards of two years he lived almost entirely upon fish and potatoes, and he employed himself so assiduously at his business, that he never went out to take exercise except when obliged. In the course of time, a leprous eruption appeared upon his arms and legs, but it gave him little trouble, and he did not apply for medical advice; by and by it appeared here and there upon the trunk of the body, still it attracted little of his attention. One day he slipped his foot and sprained his ancle, which swelled much, and was attended with pain. He sent for a doctor, who confined him to bed, leeched the part affected, put him upon the strictest antiphlogistic regimen, and prescribed a dose of salts daily. Under this treatment the leprous eruption extended rapidly; his appetite became bad, the tongue foul and loaded. At the end of a month the surface of both extremities was inflamed, and the disease was now converted into psoriasis, with excessive discharge, swelling, and itching. All kinds of local applications were tried without benefit; and when I was consulted, the gentleman was in the following condition.—His legs and arms were much swollen, painful, and so itchy that he was deprived of rest; they were covered with scabs, which were produced by the partial drying of a profuse discharge of fetid serous fluid, which seemed to ooze from every pore of an intensely red, shining, and highly inflamed cutis. So profuse was the discharge, that it soiled the bedding, and notwithstanding every precaution, no means could be devised to prevent the linen from sticking to the affected parts, the separation of which produced great pain, aggravated the local inflammation, and frequently caused bleeding from the parts. The trunk of the body, the face and scalp, were also affected with that form of *lepra* termed *vulgaris*. His strength was destroyed, partly by the remedies and the diet, and partly by

the constitutional irritation, and want of sleep, but principally by the constant profuse discharge. He had now been confined for the most part to bed for about 140 days. The pulse was quick and weak; he had constant singing in his ears, giddiness upon raising his head from the pillow; and for some days he had always fainted upon getting up for necessary purposes. Notwithstanding the quantity of salts and other purgatives taken, his bowels were in bad order, the stools were scanty, very dark in colour, and fetid; the tongue was swollen, rough, fissured, and covered with a thick crust. The following treatment was adopted. The carron oil was changed for a warm solution of sugar-of-lead to the parts affected, which was applied by means of bandages kept wet with it; a few doses of calomel were exhibited; and he was allowed some wine and water. From this time he enjoyed good rest; the tongue improved so much in two or three days, that he was allowed a small quantity of animal food; the heat, inflammation, and discharge, were so much diminished in the course of three or four days, that the saturnine lotion was discontinued, and the limbs were enveloped in fine oil-silk. He made such a rapid recovery, by the assistance of small doses of blue-pill and Harrogate water, that he considered himself quite well in the course of three weeks; and although he has since had several slight relapses, they were attributed to errors of diet, and inattention to the bowels. Exactly a year afterwards, the disease returned in a severe form on the extremities, but was speedily cured by one general bleeding and the employment of the local remedies. Five years have now elapsed, and this gentleman is in the enjoyment of excellent health, and has had no return of the complaint.

Treatment of Psoriasis.—The above case shews the treatment that I would recommend; and the only circumstances which ought to be mentioned in addition to what has been stated respecting lepra, are the greater necessity for cleanliness, and the application of oil-silk to the affected part.

Pityriasis.

This is a very superficial affection, consisting of irregular patches of slender scales, which repeatedly exfoliate and recur,

but which neither form crusts, nor are accompanied by fluid excretion, or excoriations; and it is stated not to be contagious. The most frequent situation of pityriasis is the scalp, and when it attacks infants, it is commonly called "dandriff;" Willan and Bateman have given it the term *pityriasis capitis*. It is now and then observed in adults, particularly those of dark complexion. Cleanliness, in this instance, prevents the disease from being troublesome; and it may be easily removed, even when the scurf is pretty thick, by washing the part with soap and water, and a soft brush daily, or using a solution of the carb. sodæ. When neglected, however, it runs into a state much resembling the worst forms of porrigo.

Pityriasis in a severe form now and then occurs in adults, producing considerable discomfort to the individual. According to Mr Plumbe, different parts of the body become the seats of much itching and tenderness; and when friction is employed, scabs of considerable thickness fall off, the parts below exhibiting a red, shining, glossy, and sometimes slightly moist surface. The skin of the chest and back are the common seats of this form of the affection; but the hairy scalp and its margin also partake of it. The colour of the parts, when covered with the diseased cuticle, is of a lightish yellow, or copper hue; when the cuticle is removed, it approaches more to red; but the cutis at no time appears of the colour consequent on common abrasion. The figure of the patches is very various; "here and there are spots of from half an inch or less, to two or three inches in diameter, approaching perhaps to a circular form. These will perhaps be found around the margin of a larger patch, the outlines of which are as irregular as the outlines of a map of an island. The colour of these larger patches also varies from time to time in different parts, from a light straw to a reddish colour; hence the terms *pityriasis versicolor*, *p. rubra*, which Willan and Bateman have formed into varieties."

Causes and Treatment of Pityriasis.—I have seen a limited number of cases of this disease which required any treatment; and therefore I shall make free to quote the pathological and practical remarks of Mr Plumbe. He says the disease, as occurring in adults, pretty uniformly attacks individuals of de-

licate health, and diminished energy of circulation. In such states of the system, the cutaneous vessels partake of the general debility, and have the disadvantages of their locality, as furthest from the centre of circulation; and being exposed at the same time to vicissitudes of temperature, they are incapable of the formation of sound cuticle, and produce instead the delicate and ill-formed substance described. "The state of the circulation and system, in all cases which come under our notice, proves this view of the case to be correct. I have never seen a single case, (says he,) where want of energy was not apparent, and very few where the supply of this was not followed by speedy recovery. Violent and distressing impressions on the mind, original debility of constitution, the depressing effects of long-continued illness in warm climates, &c. are found very commonly to have been co-existent with the first appearance of the disease."

The constitutional treatment which will be found most successful, is that which is in strict accordance with the above principles. Measures which tend to invigorate the system, will be always proper, if not forbidden by organic disease. Bark, steel, sea-bathing, gentle exercise in the open air, ease of mind, nourishing food, and plenty of rest, constitute what is usually requisite on such occasions. Now and then the sulphur vapour bath has been rendered necessary, the cutaneous vessels having failed to recover their tone, though the general health had been much improved. When the scalp is much affected, and the scurf forms in considerable quantities, the free use of a solution of acetate of zinc, in equal parts of rose water and proof spirits, constitutes an agreeable and useful application. In addition to these remarks, it may be mentioned, that in the few cases which have fallen under my notice, the internal and external use of fresh lime juice has been found beneficial, or common vinegar applied to the diseased surface.

CHAP. VI.

VESICULAR DISEASES.

The following is Bateman's definition of vesicle: "A small orbicular elevation of the cuticle, containing lymph, which is sometimes clear and colourless, but often opaque, and whitish, or pearl-coloured. It is succeeded either by scurf, or by a laminated scab." This author has divided his order vesiculæ into seven genera, viz. varicella, vaccinea, herpes, rupia, miliaria, eczema, aptha. Each of these he has subdivided into several varieties. Some of his orders, as varicella, vaccinea, miliaria, and aptha, are misplaced; I shall include all that I have to say on vesicular diseases under the term herpes.

Herpes.

Willan and Bateman have subdivided herpes into six species, viz. *herpes phlyctænodes—zoster—circinatus—labialis—præputialis—iris*. According to the latter of these authors, this appellation is "limited to a vesicular disease, which, in most of its forms, passes through a regular course of increase, maturation, and decline, and terminates in about ten, twelve, or fourteen days. The vesicles arise in distinct but irregular clusters, which commonly appear in quick succession; and they are set near together, upon an inflamed base, which extends a little beyond the margin of each cluster. The eruption is preceded, when it is extensive, by considerable constitutional disorder, and is accompanied by a sensation

of heat and tingling, sometimes by severe deep-seated pain in the parts affected. The lymph of the vesicles, which is at first clear and colourless, becomes gradually milky and opake, and ultimately concretes into scabs; but, in some cases, a copious discharge takes place, and tedious ulcerations ensue. The disorder is not contagious in any of its forms."

Herpetic eruptions occur in various parts of the body. When on the lips and angles of the mouth, the disease is called *herpes labialis*,—when in the form of a belt across the shoulder, or round the waist like a sash, it is termed *herpes zoster*, and in common language "shingles." When it has no certain seat, but sometimes appears on one part of the body, sometimes on another, with the exception of the situations already mentioned, the disease is termed *herpes phlyctænodes*; but surely difference of locality is no reason why different appellations should be applied.

This class of disorders is for the most part, if not always, accompanied by constitutional disorder sufficiently marked to attract attention, such as that produced by sub-acute inflammation of the bronchial membrane. Hence we find it taking place towards the termination of what are called catarrhal fevers, producing immediate constitutional relief, which the strongest remedial agents had perhaps failed to accomplish. I have also often seen the other forms of the affection, particularly that described as herpes zoster, occur in the course of bronchial inflammation; but more particularly when there were strong marks indicating a disordered state of the stomach and bowels.

Females appear to be more subject to this disease than males, and people who are delicate, more than the strong and athletic.

Causes of Herpes.—Besides occurring under the forms of internal disease already mentioned, it has been referred to the suppression of hemorrhoidal or menstrual discharges, sudden change of habits as to diet, but more particularly from an active to a sedentary life. It may be produced by particular articles of food.

With respect to the pathology of the herpetic eruption, its seat is in the superficial vessels of the skin, and its nature is

inflammatory, the effect of which is effusion of serum, separating the cuticle by mechanical distention; we see similar effects produced by blisters, and some other external irritants.

Treatment of Herpes.—This is very simple, and consists in relieving internal disorder, and subduing any constitutional disturbances that may exist. The lancet is not often required; but I have seen it sometimes necessary, and very beneficial; in general, however, low diet, consisting of arrow-root, and the like; gentle laxatives, repeated twice or thrice in the twenty-four hours, the warm bath, and confinement to the house, will be adviseable. The best local treatment is to open each vesicle early, and occasionally to apply fomentations. But in the most severe form of the complaint, viz. the *herpes zoster*, where the pain is very severe, the best effects will be produced by applying a dozen of leeches on the inflamed part; if done early before many vesicles have appeared, the further progress of the disease will be stopped. I observe that Mr Plumbe has, in two or three instances, applied small blisters to the uninflamed skin in the neighbourhood of the vesicles, not only with the effect of checking their extension, but producing a shrivelling of those already formed. If it be not found necessary either to apply leeches, or a blister, the best application after opening the vesicles, is a poultice of lint-seed meal; and I can see no objections to the occasional application of a cooling saturnine wash.

When treating of syphilis, I shall speak of an herpetic eruption affecting the prepuce, which is consequently termed *herpes præputialis.*

Pemphigus and Pompholyx.

There can be no doubt but that the diseases described under these two names, have in all ages been confounded with each other. The terms denote the existence of large vesicles, which are termed "bullæ," and in common language "blebs." The affection is called Pemphigus, when the blebs are preceded or accompanied by fever, and Pompholyx when without fever, and when the eruption is without an inflammatory base. The existence of pemphigus as a distinct disease, was

denied by Cullen and others, but it has been described by many authors. I have frequently seen large bullæ take place in the course of slight, as well as severe fevers; but instead of considering them entitled to any specific character, I have always looked upon their occurrence as an accidental circumstance, and have made no difference in the treatment of the original disease. With respect to local treatment, I have only to observe that the bullæ are not to be interfered with, unless there be considerable local irritation and pain, when a small puncture may be made with a lancet, and perhaps a light poultice of lint-seed meal applied; but it is rarely necessary to interfere with them, unless from the restlessness of the patient they are ruptured, when the same application may be made to them.

Pompholyx.—As far as I can understand, this disease, as defined by Willan and Bateman, is of very rare occurrence; one case only has been seen in this city. It is in the person of a poor man who appears to have no constitutional distress, and who is able to work hard for his daily support.

CHAP. VII.

PURPURA.

I PURPOSE to treat in this chapter of that kind of purpura, which is commonly known by the term *purpura hæmorrhagica.*

A number of diseases which appear on the surface of the body have been already described. Some of them terminate by suppuration, others by a secretion of serum; a third class by the formation of scales, &c.; and now we have to consider an affection where blood is poured out under the cuticle, forming appearances which are termed *petechiæ*, and upon the surfaces of all the cavities lined by mucous and serous membranes, forming dark-coloured spots, resembling in every respect those found on the cutis. Purpura is a disease which is accompanied by such threatening symptoms, that it has riveted the attention of almost every medical man who has seen it; but we are still in total ignorance of the pathology of the disease. The following description of *purpura hæmorrhagica* is taken from Bateman:—"The petechiæ are often of a large size, and are interspersed with vibices and ecchymoses, or livid stripes and patches, resembling the marks left by the strokes of a whip, or by violent bruises. They commonly appear first on the legs, and at uncertain periods afterwards, on the thighs, arms, and trunk of the body; the hands being more rarely spotted with them, and the face generally free. They are usually of a bright red colour when they first ap-

pear, but soon become purple or livid; and when about to disappear, they change to a brown or yellowish hue; so that, as new eruptions arise, and the absorption of the old ones slowly proceeds, this variety of colour is commonly seen in the different spots at the same time. The cuticle over them appears smooth and shining, but it is not sensibly elevated; in a few cases, however, the cuticle has been seen raised into a sort of vesicles, containing black blood. This more frequently happens in the spots which appear in the tongue, gums, palate, and inside of the cheeks and lips, when the cuticle is extremely thin, and breaks from the slightest force, discharging the effused blood. The gentlest pressure on the skin, even such as is applied in feeling the pulse, will often produce a purple blotch, like that which is left after a severe bruise.

"The same state of the habit which gives rise to these effusions under the cuticle, produces likewise copious discharges of blood, especially from the internal parts, which are defended by more delicate coverings. These hæmorrhages are often very profuse, and not easily restrained, and therefore sometimes prove suddenly fatal. But in other cases they are less copious; sometimes returning every day at stated periods, and sometimes less frequently, and at irregular intervals; and sometimes there is a slow and almost incessant oozing of blood. The bleeding occurs from the gums, nostrils, throat, inside of the cheeks, tongue, and lips, and sometimes from the lining membrane of the eye-lids, the urethra, and the external ear; and also from the internal cavities of the lungs, stomach, bowels, uterus, kidneys, and bladder. There is the utmost variety, however, in different instances, as to the period of the disease, in which the hæmorrhages commence and cease, and as to the proportion which they bear to the cutaneous efflorescence.

"This singular disease is often preceded for some weeks by great lassitude, faintness, and pains in the limbs, which render the patients incapable of any exertion; but, not unfrequently, it appears suddenly, in the midst of apparent good health. It is always accompanied by extreme debility and depression of spirits: the pulse is commonly feeble, and sometimes quick-

ened; and heat, flushing, perspiration, and other symptoms of slight febrile irritation, recurring like the paroxysms of hectic, occasionally attend. In some patients, deep-seated pains have been felt about the præcordia, and in the chest, loins, and abdomen; and in others, a considerable cough has accompanied the complaint, or a tumour and tension of the epigastrium and hypochondria, with tenderness on pressure, and a constipated or irregular state of bowels. But in many cases, no febrile appearances have been noticed; and the functions of the intestines are often natural. In a few instances, frequent syncope has occurred. When the disease has continued for some time, the patient becomes sallow, or of a dirty complexion, and much emaciated; and some degree of œdema appears in the lower extremities, which afterwards extends to other parts.

"The disease is extremely uncertain in its duration; in some instances it has terminated in a few days, while in others, it has continued not only for many months, but even for years. Dr Duncan related a case to me, when I was preparing my thesis on this subject, which occurred in a boy, who was employed for several years by the players at *golf* to carry their sticks, and whose skin was constantly crowded with petechiæ, and exhibited vibices and purple blotches, whenever he received the slightest blow. Yet he was, in other respects, in good health. At length a profuse hæmorrhage took place from his lungs, which occasioned his death. When the disease terminates fatally, it is commonly from the copious discharge of blood, either suddenly effused from some important organ, or more slowly from several parts at the same time. A young medical friend of mine was instantaneously destroyed by pulmonary hæmorrhage, while affected with purpura, in his convalescence from a fever, after he had gone into Lincolnshire to expedite his recovery; and I have seen three instances of the latter mode of termination, in all of which there was a constant oozing of blood from the mouth and nostrils, and at the same time considerable discharges of it from the bowels, and from the lungs by coughing; and in one it was likewise ejected from the stomach by vomiting for three or four days previous to death. On the other hand, I lately saw a case of

purpura simplex, in which the petechiæ were confined to the legs, in a feeble woman about forty years of age, who was suddenly relieved from the eruption, and attendant debility, after a severe catamenial flooding." (P. 104.)

The result of the following highly interesting case of purpura hæmorrhagica, shews in a marked manner the benefit of venæsection, conjoined with purging. It is extracted from the first vol. of the Trans. of the Med. Chirurg. Society of Edinburgh: —A boy aged 6, of a weak and strumous constitution, with swelling of the glands of the neck, and a slight inflammatory affection of the eyes, was observed to be particularly unwell on the 24th April 1823, and the two following days. He was dull, thirsty, with flushed face, and manifested an inclination to sit near the fire. On 27th, spots like flea-bites appeared on a great part of his skin, and soon increased considerably: some were small and red, and others large, and of a purple colour. On 28th, blood oozed from the mouth, with occasional bloody sputa. On the 39th, the urine became turbid, and of a reddish colour; he moved about occasionally, unwilling to remain in bed; and he even, on the forenoon of this day, walked a distance of at least a mile and a half for medical aid. Dr Ebenezer Gairdner first visited this little patient on the afternoon of the 1st May, and saw at once that it was a distinctly marked case of the purpura hæmorrhagica of Willan. The whole body, the anterior part of both thighs, the conjunctiva of the right eye, the tongue, the Schneiderian membrane, were all affected with purple spots. Blood oozed from the gums, which were neither soft nor swollen; breath extremely fetid; and Dr Gairdner was told that he occasionally vomited blood. There was fulness, with pain on pressure in both hypochondria, particularly in the left; the abdomen was rather tumid, and affected with obscure pain; belly costive; urine free, and in appearance the same as before described. Pulse quick and sharp; slight heat of skin. He seemed little oppressed, was attentive and acute, and expressed curiosity to know what were the marks on his skin. A saline cathartic immediately. Fifteen drops of dil. sulph. acid thrice a-day. To be bathed in tepid water morning and evening.

May 2*d*. Passed a bad night. There were now considerable

oppression, aud hurried respiration. The hæmorrhagic symptoms had increased, with more petechiæ and vibices; pulse 110, wiry; skin hot and dry. Blood was immediately drawn to the extent of about 10 ounces, when the boy became suddenly sick, and vomited. Considerable difficulty was experienced in suppressing the flow of blood from the wound, and during the remainder of the day he lost some quantity, which could not, however, be estimated, notwithstanding which the pulse at 4 o'clock P. M. was 124 and wiry; the skin was also hot. He was afterwards drowsy, and slept quietly for three hours and a half. The tepid bath and acid drops to be continued, and a powder containing three grains of calomel, and the same quantity of jalap, to be given next morning, and repeated every three hours, until the full effect was produced.

3*d*, Blood still oozing from the orifice in the vein; there were less oppression and dyspnœa; the pulse, though quick and sharp, was less so than yesterday; tongue improved; little thirst; urinary and alvine discharges nearly as before. The acid drops, laxative powders, and the tepid bath, to be continued.

4*th*, Pain under the *os frontis;* ecchymosis of the eye greater; the pain in both hypochondria increased with considerable tension; pulse 124, firmer. Another bleeding was determined upon; and when the bandage was loosened, the wound was still found open; the part corresponding to the compress had become ecchymosed, but without swelling. At first the blood only oozed out, and soon flowed, but not very freely; the patient became faint, so that only two or three ounces were obtained. At evening visit, it was found that there had been some draining of blood from the orifice; but the patient was then in a quiet, sound sleep; pulse the same as in the morning; skin rather soft, and not very hot; and it was stated, that he had been asking for food in the course of the day.

5*th*, Passed since yesterday a good deal of urine, which was now pale and limpid; pulse 102; heat moderate; tongue clean and moist; gums still tender; and during the night there had been some oozing of blood from them. Has taken a little light nourishment with some relish. Bowels opened by the powders; the stools were excessively offensive, and very black

coloured; some increase of pain, with tension of the abdomen, and in both hypochondria. Fomentations, and small doses of castor oil. In the afternoon, the pain had increased, and he moaned much; during the day, several copious and grumous stools were passed; and at 4 P. M. he seemed much distressed. A mixture with an ounce of bark infused in a pound of port wine, with an equal quantity of water, was then ordered to be exhibited in small doses; castor oil to be continued. In the evening he passed more black feces; he was relieved from pain, and had some sleep.

6*th*, Passed a good night; little or none of the bark infusion had been taken; he also refused the oil, therefore a laxative powder was ordered. The same dark-coloured feces were passed from the bowels with less pain; no oozing of blood from the gums, nor in the sputa; pulse 98; temperature of the skin natural.

7*th*, Symptoms favourable. Much black feces discharged.

8*th*, Stools of a natural appearance; petechiæ began to fade; pulse 96, not weak; appetite improving.

From this time he recovered rapidly. On the 14th he was out taking an airing; and on the 16th was running about, and his parents thought him to be in better health than he had been before the accession of the present complaint.

The blood first drawn, coagulated very slowly, without separating any serum; on the following day it looked like a tremulous jelly, the top being of a greenish buff colour, interspersed with brownish spots. That which was afterwards discharged had, as it came from the arm, more the appearance and consistence of turbid lymph, or fluid in which some reddish colouring matter was in suspension; and the cloths which were soiled did not present the usual stains of blood, but something like those of dirty water, interspersed with large stains of a reddish brown colour.

The reader is referred to the volume of the "Transactions," for an interesting account of the analysis of the urine.

In the same volume of the "Transactions" will be found another interesting case of purpura, with an account of the traces of disease discovered on dissection. A girl aged twelve, of a scrofulous constitution, although otherwise in

good health and spirits, with the exception of a chronic disease in her left wrist, was first observed on the 21st June 1823, to have a dark spot on her under lip, as if she had been putting a pen into her mouth. Next morning similar spots were observed thickly studded over her legs, and also a considerable number on her arms, but she made no complaint, and was amused at being thought sick, when she felt in perfect health. She walked about a mile, and returned with perfect ease. A laxative prescribed. Next day she was sitting up, unconscious of ailment; external appearance much the same as yesterday; pulse good; no heat of skin. Salts. About 10 on the evening of the 22d she asked for supper, and was allowed some bread and milk. During the night she had two stools; she felt faint and giddy with the last, and required assistance on returning to bed; she was now seized with vomiting, and with a very severe pain in the right temple; the sickness was most distressing, and when raised up, vomiting supervened; the matter vomited was tinged with blood; and it was also observed, that the gums were readily excited to bleed. This was followed by great languor and exhaustion, and excited alarm of her immediate dissolution. Subsequently symptoms of oppressed brain came on, and she died at 3 P. M. of the 23d.

Dissection.—The appearance of the surface of the body remained unchanged. The pericranium was covered with petechial spots, as was the dura mater; on removing the membrane, the effects of a large effusion of blood were exhibited. In the right temporal region, a firm coagulum floating in bloody serum had forced its way through the broken down brain into the ventricle. The pleura and the peritoneum were found, like the dura mater, studded throughout with the dark livid spots.

This case requires no comment. The patient had the able advice of Mr William Wood of Edinburgh, a gentleman of great practical acumen, and large experience. It is evident, however, from the history of the case, that the bad symptoms came on suddenly about twelve hours before the death of the patient, in consequence of the effusion of blood which was afterwards found in the brain, and when no human means

could have averted the fatal termination. How far a previous bleeding might have operated in preventing the cerebral effusion, it is difficult to determine; but I must own, that were such a case to occur in my practice, now that I have had the advantage of reading the result of that related above, I should feel little hesitation in opening a vein.

Another case of purpura hæmorrhagica was communicated by Dr Fairbairn to the Medico-Chirurgical Society of Edinburgh, in the second volume of whose "Transactions" it will be found recorded, and from which the following brief extracts are made.

The subject of this case was J. Henderson, aged 24, of robust constitution and regular habits. On the 18th November 1823, Dr Fairbairn found him complaining of deep-seated pain in the left breast, aggravated by frequent fits of coughing, and by a full inspiration; breathing hurried and laborious, with a distressing sensation of suffocation in the horizontal posture; countenance flushed and anxious. A copious discharge of dark venous blood oozed from the mucous membrane of the mouth, and a portion was also apparently expectorated from the lungs. Numerous petechiæ and vibices were observed upon the arms, neck, and trunk, but they were in greater number on the legs, varying in magnitude from a mere point to the size of a sixpence. There were also a few spots upon the forehead; some of the spots were of a bright red colour, others were purple or livid, and a few of a dirty yellow. In the mouth, similar spots occupied the gums, cheeks, tongue, and fauces; the tongue itself was covered with a dark fur; urine presented a grumous appearance; pulse 110, firm and sharp; increased heat; belly loose from a powder composed of jalap, which he had taken early in the morning.

The patient stated, that he had for several weeks previous to the attack experienced considerable depression of spirits, general lassitude, and pains in his limbs, which were stiff and swollen at night. He also felt pains occasionally darting across his head and chest; had a tickling cough, irregular shivering, followed by flushes of heat and partial perspirations. About the 12th Nov. six days before Dr F. saw him, he first observed his sputa tinged with blood, which afterwards gra-

dually increased. On the 16th, the discolouration of the skin made its appearance first on the legs, afterwards on his arms and trunk; it was only in the morning on which Dr F. saw him that the dyspnœa, and other symptoms above described, came on. Bled to 26 oz. from the arm, which occasioned threatening syncope, with alleviation of the breathing, oppression, and pain. No buffy coat on the blood, which, however, presented a colour resembling arterial, and coagulated slowly without separating any serum, the coagulum being somewhat soft and tremulous. Frequent doses of 15 drops of dil. sulph. acid. to be given in cold water.

19*th*, Passed a restless night with fearful dreams and startings; pectoral symptoms somewhat alleviated, though he still complained of a corded sensation across the lower part of his chest. Considerable oozing of blood from the mouth; urine grumous, and rather scanty; no stool; pulse 112, and sharp; skin hot; tongue furred, and streaked with blood. Eighteen ounces of blood were taken from the same wound in the arm, which nearly produced syncope, the blood exhibiting the same appearance as formerly. An ounce of Epsom salts immediately. At 8 P. M. Dr Fairbairn found that his patient had had three hours of refreshing sleep in the course of the afternoon, but there was no mitigation of the pain, dyspnœa, and corded sensation in the chest. One loose fetid stool from the salts; oozing of blood from the mouth diminished; urine grumous, but the quantity is increased; pulse from 115 to 120, sharp and wiry; tongue dry and furred; skin rather moist. An ounce of castor-oil.

20*th*, Had some intervals of sleep during the night, but awoke in great alarm; experienced darting pains in the head occasionally, with slight delirium; frequent hiccup; pectoral symptoms the same; very little discharge of blood from the mouth; petechiæ more numerous, especially on the inferior extremities; had two stools resembling pitch; urine scanty and grumous; tongue dry and furred. Blood to the amount of ℥xx. was drawn, which produced syncope; buffy coat now apparent. A little wine and water, and beef-tea occasionally till the state of collapse be removed, and subsequently decoct. cinchon. to be given in repeated doses.

4 P. M. Had some intervals of sleep since the bleeding; is perfectly sensible, though he cannot articulate distinctly; pulse small and irregular; skin covered with a cold sweat. The decoction had not been given as directed. Wine and beef-tea to be continued.

At midnight Dr Fairbairn found him in a comatose state, insensible to surrounding objects; the breathing laborious, with frequent heavy moaning, and he expired on the morning of the 21st, being the sixth day from the appearance of the petechiæ.

The appearances on dissection in this case will be found at page 316.

The following is extracted from Dr J. S. Combe's case of purpura hæmorrhagica, detailed in the 17th vol. of the Edinburgh Medical and Surgical Journal, (page 83.)

"19*th Sept.* 1820. Edward Canny, æt. 10. Skin universally covered with petechiæ of a dark brown, almost black colour, varying in size from that of a pin-head to one-third of an inch in diameter, of form nearly circular, but, on the lower extremities, less distinctly circumscribed, and pale. The tongue, gums, and fauces, as far as can be seen, are studded with spots, but not so thickly as on the outer surface. There is a constant and pretty copious discharge of *thin* pale blood from the mouth and nostrils. The petechiæ on the tongue bleed freely when touched. Pulse 116, small, and rather sharp; skin hot; tongue white; breathing hurried, but he is able to draw a full inspiration. Appetite not affected; very thirsty; has severe pains in head and legs; very weak.

The spots were first observed two days ago in the morning, and on the evening of the same day blood began to issue from his mouth; had passed a stool, in which bloody dots were perceived—ordered a brisk purgative, and 10 drops of acid. sulph. dil. aromat. thrice a-day.

20*th*, Petechiæ present various shades of colour; blood oozing freely; pulse 120, small; had one stool, very fetid; skin hot; appetite good; urine scanty, very thick.—Rep. pulv. purg. et cont. acid. sulph. dil.

22*d*, A number of the spots have run into large vibices; discharge of blood equally copious, and much attenuated,

pulse 120, fuller. Vomited a little blood twice; complains of sickness on raising his head; severe pain in the head; bowels freely open; stools dark-coloured, fetid; urine said to be high-coloured and sparing in quantity.—Habt. iterum pulv. purg. et sumat. pulv. cinch. g^{ra} x. cum acid. sulph. dil. g^{tt} viij. quartâ quâque horâ. Let him have an ounce of port wine every five hours.

23*d*, Slept ill; pain in forehead; nausea, and occasional retching; great debility. Pulse 110, small; petechiæ and hæmorrhage as before; bowels freely opened; urine scanty, turbid, and depositing a copious sediment; body emits a most offensive fetor.—Cont. omnia.

24*th*, He is in an alarming state; oppressed with nausea; vomits on the least exertion. Has not taken his medicines; blood flowing more copiously from mouth; petechiæ have gone into large clusters on forehead, arms, and legs. Pulse 120, hard; violent pain in the head; skin hot in the trunk, but cold on the extremities. Eight ounces of blood abstracted from external jugular vein. He became faint, and vomited, and the pulse softer and fuller. The blood flowed in a small stream, and was of a very pale colour, liker the washings of flesh than common blood; coagulated slowly, without any separation of serum, and shewed no buffy coat.—Ordered a purgative,—discontinue the other medicines. On visiting him eight hours after, he was rather better; sickness much abated, and no vomiting. Pulse 110, soft; headache easier; bowels opened three times; stools more natural in appearance. There has been a copious flow of pale, limpid urine; the wound in the vein had not closed, from which he lost about ʒiss. more of blood.

25*th*, 8 A. M. Dr Combe was called in great haste to stop the bleeding from the jugular. The patient's clothes and bedclothes were quite soaked with blood; it was paler, and even more attenuated. Caustic applied to the wound.—In other respects decidedly better: voice stronger; countenance more animated; headache relieved; no nausea or vomiting; urine very turbid. Ordered to be kept quiet, and to have any diet he chose, but no spirits. In the evening no blood had been discharged for the last two hours, either from wound or

mouth. Habt. tinct. opii g^{tt} xx. h. s. et pulv. jalap. gr. xii. cras mane.

26*th*, Lost about ʒi. of blood from the wound during the night. Slept well; headache very slight; pulse 120, soft. No discharge of blood from nose or mouth; petechiæ fainter and more diffused. Bowels freely opened; stools natural; urine clear, and of a pale yellow colour.

27*th*, Convalescent. From this time he went on doing well; and the spots having altogether disappeared, he was discharged on 7th October."

Causes of Purpura.—According to Bateman, "the causes of this disease are by no means clearly ascertained, nor its pathology well understood." Twenty years have now elapsed since this statement was printed, and although many cases have since occurred, and several have been minutely recorded with the appearances found on dissection, we are still perfectly ignorant both as to its causes and pathology. It has taken place in individuals who were strong, enjoying good health, breathing a pure country air, with all the necessaries and comforts of life around them; and it has likewise attacked those of delicate habit, living in crowded situations, on poor diet, and subject to distress of mind; and it has also occurred in others who were left in a state of debility by previous diseases, some of an acute, others of a chronic nature.

In most of the cases which have been recorded, there has been severe pain or oppression in the chest, and in some, in the head. In two cases, mentioned by Dr Parry in 5th vol. Ed. Med. and Surg. Journal, the blood was very much buffed, the proportion of crassamentum to that of serum was uncommonly great. In Dr Fairbairn's case, three bleedings were had recourse to,—the first to twenty-six ounces, the second to eighteen, and the third to twenty; there was no buff on the two first, the blood was red like arterial, coagulated slowly, and separated no serum; but on the third bleeding, the blood showed a buffy coat. In Dr Johnson's case, only a part of the blood drawn at the second bleeding exhibited a buffy surface.

In different cases the pulse has been variously described—as full; 70, full but not hard; 100, full and intermitting;

quick, soft, and small; very quick and weak; 100 and small; 110, firm and sharp; very hard and strong; 120, full. In almost all the cases the stools have been dark-coloured and fetid; some describe them as being of a dark-green colour; and others, as black as pitch.

Appearances on Dissection.—Petechial marks have been discovered on the surface of all internal organs; vascular turgescence, sanguineous and serous effusions, have been observed in the head. The lungs have always been found diseased—congested in their substance, the air-passages filled with bloody effusion, and the mucous membrane lining the tubes of a dark colour. In the abdomen the mucous surface of the stomach and intestines has been found vascular, and spotted with petechiæ; the liver tender, and more or less gorged. In one case mentioned by Dr Bateman, the spleen was found enormously enlarged; and in another instance there was a large morbid growth, consisting of a fleshy tumour with a hard cartilaginous nucleus, weighing about half a pound, found in the situation of the thymus gland, firmly attached to the sternum, clavicle, pericardium, and surrounding parts.

The following appearances were found in the case recorded by Dr Fairbairn, thirty hours after death.—

"The petechial spots over the body exhibited nearly the same appearances as before death. The sides of the neck, and upper parts of the chest, were swollen and livid, and there was a feeling of crepitus, with considerable œdema over the trunk. On removing the integuments from the fore and lateral parts of the chest, the cellular and muscular textures were in some places injected with blood, and emphysematous.

"The thorax contained about a pound of a fluid resembling blood, of a very dark colour and viscid consistence.

"The lungs were somewhat collapsed, of a dark livid appearance, and contained a bloody serous fluid, which occupied all parts equally; there was much less feeling of crepitus throughout their substance, and the spongy texture was less observable than natural. The bronchial tubes and trachea were filled with a similar fluid; and beneath the internal coat of the latter, there was a slight effusion of dark venous blood, which tinged the membrane of a deep purple shade. Between

the folds of the anterior mediastinum and of the pericardium, there was effused into the cellular texture a considerable quantity of very dark blood, mostly in a clotted state, amounting to several ounces by computation. The pericardium contained the usual quantity of lubricating fluid; the inner surface presented its natural smooth, glossy texture, but it had assumed anteriorly a deep or brownish red colour, from the effused blood between its layers shining through it. The heart appeared pale and flaccid; there was no blood in any of its cavities. Under its internal membrane, particularly towards the valves of both sides, but more copious in the left, there was a similar effusion as in the trachea, giving a deep livid colour to the surface of the heart, and tinging its substance to the depth of half a line or a line.

" The inside of the aorta presented an increased tint of redness, apparently from the same circumstances, without evident thickening, or change of texture.

" In the cavity of the abdomen, the floating viscera were of a dark leaden colour, and less vascular than natural.

" There were a few petechiæ on the intestines. In the ileum there was slight inflammation, extending for a couple of inches, where one portion of the bowel had passed within another.

" In the stomach, towards the pyloric extremity, its inner membrane was thickly studded with petechiæ; whereas that portion surrounding the cardia, for about three inches, was distinctly emphysematous.

" The liver was paler than usual, and somewhat softened; its peritoneal proper coat was very easily peeled off; from its internal surface a bloody serous fluid could be squeezed out. The spleen was of full size, and softer than usual; and when torn, effused a quantity of dark-coloured matter, of a semi-fluid consistency.

" The right kidney seemed softer than natural; there was an effusion of blood under the internal membrane lining its pelvis, similar to that on the inside of the heart. The left appeared peculiarly blanched, and was also soft; but there was here no effusion.

" The bladder was pale and contracted, containing a few

ounces of the same turbid coloured urine as he had been lately passing.

" On removing the scalp there were two large ecchymoses, two on each side, over the superior attachments of the temporal muscles. The brain, with its membranes, appeared quite healthy; there might be about an ounce or so of clear serum in the ventricles, and at the base of the brain.

" In the course of dissection it was remarked, that there was a full proportion of adipose substance in every part of the body."

Pathology of Purpura.—After relating two cases of purpura in the 5th vol. of the Ed. Med. Journal, the one occurring in a lady about 50, the other in a colonel of the army, who had been rather a free liver, Dr Parry observes:—" These cases strengthen an opinion which I more than twenty years ago maintained, and which a large subsequent experience has tended to confirm,—that in various diseases, among which may be reckoned inflammations, profluvia, hæmorrhages, dropsies, exanthemata, and other cutaneous eruptions, and even the generality of nervous affections, there is one circumstance in common, which is an over-distention of certain blood-vessels, arising probably from their relative want of tone, or the due contraction of their muscular fibres."

Dr Duncan, jun. in the 72d Number of the Edinburgh Journal, conceives that this disease may probably arise from the following circumstances:—

" 1st. Increased tenuity of blood, allowing it to escape from the superficial extremities of the minute arteries.

" 2d. Dilatation of the mouths of those arteries allowing natural blood to escape.

" 3d. Tenderness of the coats of the minute vessels which give way from the ordinary impetus of the blood.

" 4th. Increased impetus of the blood rupturing healthy vessels.

" 5th. Obstructions in the vessels causing rupture, with natural impetus, and without increased tenderness.

" 6th. Two or more of these causes may act simultaneously or successively."

Mr Plumbe thinks that Dr Duncan's third conjecture is

unquestionably correct as regards the formation of cutaneous spots of purpura. "That this tenderness is the result of deficient nourishment in the superficial vessels is perhaps equally clear; and it may fairly be suspected, that such deficiency is consequent on the congestion in the hepatic and gastric circulation."

My own experience in this disease has been very limited, but after a careful review of the whole subject, I cannot subscribe to Mr Plumbe's opinion, for the two following reasons.—1. If the disease had any necessary connexion with tenderness of the vessels, the consequence of deficient nourishment, it would be of far more frequent occurrence, whereas it is avowedly rare. 2. It is my impression that the state of the lungs in all stages of the disease, and more particularly in the early stages, has been hitherto quite overlooked. In one rapidly acute case which I was called to see, and which terminated fatally, the *râle crepitant* was heard in some parts of the chest, and the *râle muceux* in others. Although I have not been able to determine the true pathology of the disease, I think it possible that it may be owing to general functional derangement of many organs, which at last produces a great change upon the blood; and that it may be owing probably to disease primarily seated in the lungs.

It is pretty generally admitted, that there is considerable analogy between the purpurous spots and the petechial which sometimes take place in fevers, in which there are also occasional discharges of blood from various organs; and I can state with the utmost confidence, that since my attention became directed to the investigation of the probable causes of petechiæ, I have not in one instance failed in detecting disease of the lungs, and particularly of the mucous membrane, by auscultation, and that the observations so made have been confirmed upon examination after death.

Treatment of Purpura.—Under the mystery which at present involves the nature and seat of purpura hæmorrhagica, it is impossible to enter upon this part of the subject without a feeling of embarrassment. Dr Parry and others have, from certain notions, strongly supported venæsection, while it has been condemned by some practitioners, whose opinions are

entitled to at least equal respect. Dr Willan is one of those who recommended "a generous diet, the use of wine, Peruvian bark, and acids." There is one point, however, on which almost all practitioners agree, viz. the advantage of keeping up a free discharge from the bowels.

It is strongly impressed upon my mind, from a review of the cases, that there are some instances like those recorded by Dr Parry, Dr E. Gairdner, and Dr Combe, in which the patient's only hope of safety depends upon venæsection; and that there are other instances, as those probably from which Dr Willan drew his practical conclusions, which require an opposite mode of treatment. Daily experience also convinces me, that there is a third set of cases, in this as in almost all diseases, which requires a combination of bleeding and stimulants, and that it is not inconsistent with sound notions of pathology to bleed first, in order that we may be able to stimulate, and to stimulate for the purpose of enabling us to draw blood. Bleeding is always a dangerous remedy when employed late in severe diseases; and I fear considerable errors have happened, from drawing blood too late in purpura. A few years ago, I directed a vein to be opened in the arm of a girl affected with purpura; she died the same night; and in Dr Fairbairn's case, the man, although previously strong, never recovered from the last loss of blood, and died in a few hours afterwards. The particulars of the case which I attended, should have been detailed, but I was not allowed an opportunity of examining the body of the patient after death, although every exertion was made to obtain it. The case was so similar to others already published, that it is of no value without a minute dissection-report.

When the operation of bleeding is performed, a larger orifice should not be made than is actually necessary, and the patient ought to be visited at short intervals, as subsequent hæmorrhage frequently occurs from the vein, and a good deal of difficulty is sometimes experienced in suppressing it. The jugular ought not to be opened, unless in a case similar to Dr Combe's, where no vein was found in the arm.

Acids, particularly the mineral, have been highly recommended; but I am disposed to place more confidence in the

vegetable, and especially fresh lime-juice, not only taken internally, but applied externally. Turpentine has also been found useful by Dr Nicholl, vide 17th vol. Edinburgh Medical and Surgical Journal.

From the beneficial effects produced by the acetate of lead in other discharges, I am induced to hope it may be found serviceable in purpura hæmorrhagica.

Since writing the above, I was called to see a child, between two and three years of age, who lived in the same room with two other children affected with genuine small-pox. I found it feverish and lethargic, with constant vomiting; it had several petechial spots, and although it had gone through the process of vaccination when a few months old, I was apprehensive of small-pox. Laxative medicines were ordered.

Next day the child was found in the same state. The petechial spots had increased in number and size, and had spread over the trunk and extremities; the skin was hot, and the pulse quick and strong; nothing was retained on the stomach; several attempts were made to give laxatives, but even small quantities of calomel were immediately vomited. Four leeches were applied to the instep.

On the third day the child was found convalescent; the leeches bled profusely; and although a tight bandage had been applied as directed, still the greatest difficulty was experienced in restraining the hæmorrhage. No petechial spots were now to be seen, but the foot was ecchymosed from the pressure of the bandage, on the removal of which blood again began to ooze from the leech-bites, which made it necessary to re-apply the bandage. There had been no stool for three days, but as the irritability of the stomach had now subsided, laxative medicines were given, the bowels were moved before night, and so little debility was produced, that the child was walking about the room on the third day.

At the very moment I was engaged in completing this article for the first edition, I was favoured with a letter from Dr J. S. Combe, in answer to a communication from me on this subject; from which the following cases are extracted. They are very interesting, as in both instances the disease occurred in connection with general acute rheumatism:—

"A remarkable case of purpura was pointed out to me (says Dr Combe) by the late Dr Kellie. The subject was a brewer's servant, big and plethoric, who, on the fourth day of an attack of acute and general rheumatism, was found covered with bright petechial spots; he also discharged some blood from the bowels. Active depletion was had recourse to, and he made a quick recovery." Dr Combe further states, that he "lately saw a robust girl, aged 5, who had been attacked with a violent convulsive fit, and on recovery complained of severe pain of head. In the course of a few hours I saw her, and as small-pox prevailed in the neighbourhood, her friends considered it as such, and pointed out some spots on the skin; they were undoubtedly petechial, and covered nearly the whole body, with smart fever and vomiting. On the 3d day the extensor muscles of the head were so painful that she could not bend it forward without much suffering; in a few hours this was followed by acute pain of all the larger joints. The spots on the 5th day were fainter in colour, and disappeared in a few days after; but eight days more elapsed before the rheumatic affection had subsided. She was treated actively by venæsection and purgatives."

Exudation of blood from the surface, without abrasion of the cuticle, commonly called Bloody Sweat.

Perhaps nearly allied to purpura, is the transudation of blood from some parts of the surface of the body, which in all the cases I have heard of, has attacked females. It is a rare disease, and has been observed to be for the most part vicarious with the menstrual discharge.

In the former editions of this work, a very interesting history of a case of exudation of blood from the surface of the body was detailed; but I have since had reason to believe the girl was an impostor, and that she has deceived many medical gentlemen, to excite sympathy and obtain money.

PART VIII.

DISEASES OF THE URINARY AND GENITAL ORGANS.

CHAP. I.

INFLAMMATION OF THE URETHRA, BLADDER, AND KIDNEYS.

Inflammation of the Urethra.

Under this head I shall treat of gonorrhœa, for although inflammation of the mucous membrane of the urethra may be produced by external injuries and other causes, yet this is rare in comparison to the disease produced by impure contact.

Gonorrhœa, (known also by the term blenorrhœa,) is an inflammatory affection of the mucous membrane of the urethra, the consequence of impure coition, and of which there are a great many varieties. The symptoms vary according to the extent and intensity of the inflammation, the peculiar constitution of the patient, and perhaps also the condition of the matter applied. A disease resembling gonorrhœa, may, it is said, be produced by inflammatory action extending from the kidneys and bladder—by calculi, highly acrid urine, excessive indulgence in sexual intercourse, long-continued abuse of spirituous liquors, the action of cantharides on the system, and the incautious introduction of instruments.

Symptoms and course of Gonorrhœa.—A short time after impure connection, a sense of titillation is felt in the urethra, which soon amounts to itching, and is attended with frequent desire to make water. There is a feeling as if some urine were still left in the urethra, and a consequent effort is made to discharge it; the orifice is now observed to be red and swollen, and perhaps a small quantity of discharge is seen. By and by the desire to make water is more frequently re-

newed, and on each occasion the passage of the urine becomes more and more painful, sometimes almost intolerable, while the stream becomes smaller, notwithstanding the increased impulse given by the patient in bearing down. A pretty copious discharge of matter soon takes place from the urethra, which augments for some days, becomes thicker, puriform in appearance, and yellowish in colour; but when the inflammation is intense, it is greenish, and sometimes tinged with blood. It is denied that the matter is pus; we shall, however, commit no error if we consider it as a puriform fluid, analogous to that which is discharged from the inflamed surface of other mucous membranes. The glans and prepuce frequently become swollen, and although the swelling of the prepuce is generally owing to œdema, yet it is sometimes occasioned by the extension of inflammation from the glans. Often during the course of this disease there are excessively painful erections, particularly during the night, the penis being sometimes bent one way, sometimes another, which condition is termed *chordee*. This disease generally goes on increasing in violence to the seventh, and sometimes even to the fourteenth day, and I have known the acute stage to continue even to the thirtieth. The decline of the acute stage is marked by the diminution of the *ardor urinæ*, and the inflammation at the *meatus;* still, however, the discharge of puriform fluid may continue considerable under the chronic form of inflammation. Every act of sexual indulgence, the use of ardent spirits, errors of diet, the application of cold, and inattention to the bowels, frequently reproduce acute inflammatory action, by which means the disease may be prolonged for a considerable length of time.

This is a description of the disease as it usually occurs. Sometimes, however, it is seen in a much milder form, so much so as to give the patient little trouble, and occasionally appears to undergo a spontaneous cure. But there is a far more severe form of this affection, in which the pain, and probably the inflammation, extend throughout the whole urethra, affecting in some cases even the bladder, and occasioning pain in the loins; the calibre of the canal is very much diminished in consequence of the swollen state of its mucous membrane, and notwithstanding all the efforts which the patient can exert, the

urine flows drop by drop, accompanied by most excruciating pain, and chordee is frequent and distressing. In the worst cases Cowper's glands and the prostate partake of the inflammation, when a sense of heat, weight, and fulness are felt in the perinæum, generally accompanied by dysuria and tenesmus, which more frequently, however, occur when the disease spreads to the neck of the bladder. This state occasionally terminates in abscess, fistula, and permanent disease of the prostate. But a more frequent termination of gonorrhœa is stricture of the urethra, produced by a permanent thickening of the mucous membrane, or by an extension of the inflammation to the cellular tissue surrounding that part of the urethra most intensely affected. During the course of gonorrhœa, even when very slight, inflammation of the testes occasionally takes place, and also of the glands in the groin; and sometimes an herpetic eruption is produced upon the glans or prepuce, probably from the acrid nature of the matter.

The term *gleet* is used to express the existence of a discharge from the urethra, the consequence of a diseased condition in which the mucous membrane is left after acute inflammation. This discharge is generally attributed to chronic inflammatory action; it comes and goes, varies in appearance between serum and pus, but for the most part is muco-purulent. The least error in diet, the use of spirits, wines, acids, fruits, and peppers, is followed by frequent desire to make water, some ardor urinæ, and increased discharge of matter; sometimes these symptoms exist to such a degree as to make the patient himself believe that it is a fresh attack. This state increases year after year, till at last a permanent stricture is formed. Loss of health is often the consequence of disturbed nights, produced by pains in the lower extremities, and by the patient being obliged to rise many times out of bed to empty the bladder, perhaps to void only an ounce of urine. Thickening of the bladder follows, with disease of the prostate, and perhaps also of the kidneys.

Symptoms of Gonorrhœa in Females.—The chief differences produced by this disease in the male and female are the following. In the latter, the inflammatory action sometimes affects the mucous membrane of the vagina; and I have seen

several cases where there was reason to believe that the lining membrane of the uterus also became involved, giving rise to *leucorrhœa* and *menorrhagia* in their worst forms. From the small extent of the urethra in the female, which does not exceed an inch and a half in length, and the simplicity of its structure, the symptoms upon the whole are not so distressing at the time as in the male, but the disease often leaves a severe form of prurigo, affecting the labia, the nymphæ, and the clitoris.

I shall not stop to inquire whether this disease is, or is not, connected with syphilis, or whether it ever had a syphilitic origin.

Appearance of the Urethra when affected with Gonorrhœa.—Few opportunities of examining the state of the urethra in this disease present themselves. Sir Astley Cooper, however, had once such an opportunity in a criminal who had gonorrhœa at the time of his execution. "The inflammation had extended down to the bulb of the urethra; for an inch or an inch and a half down the urethra was exceedingly red, and there was some effusion of matter on the internal surface; the urethra was also red at the bulb, but not of so deep a colour. The inflammation, therefore, (says he,) is not always confined to an inch, or an inch and a half down the urethra, but often extends over the bulb, and in this way produces strictures." In the case above alluded to, the gonorrhœal inflammation had extended seven inches down the urethra; Sir Astley Cooper thinks the inflammation to be of the erysipelatous kind, and that ulceration does occasionally take place in the mucous follicles, but never in the urethra itself; if that were the case, the mucous membrane would more frequently give way. (Vide Lectures, p. 462.)

Treatment of Gonorrhœa.—This is, in many cases, a very intractable disease, and there is no telling where it will end. I have more frequently been annoyed and disgusted in conducting the treatment of gonorrhœa than of any other affection. We are often not consulted till the disease is far advanced, and great difficulty is experienced in keeping this class of patients under a proper degree of restraint.

There are two methods of treatment strongly recommend-

ed.—The one is to endeavour to alter the action of the part immediately, even during the acute stage, by means of stimulating injections, or the action of cubebs, a remedy which was introduced into this country a few years ago from the island of Java. There can be no doubt, that cubebs is a very powerful, and in many instances an excellent remedy; but bad consequences, it cannot be denied, are often produced both by it and stimulating injection when indiscriminately used. There appears to be a time at the very commencement of the first stage of the inflammation, when either remedy may prove beneficial, but this must be during the first hours, before the inflammation has extended, and previous to the formation of matter; but we seldom have such an opportunity. Were a medical man himself the patient, he might indeed apply these remedies at once, and successfully, particularly if his habit of body were in good state at the time. Cures appear to have been effected when the first stage had been further advanced, but perhaps for one such event, there have been fifty failures, out of which several cases might be produced, where more violent inflammation and suppuration of the parts, and even inflammation of the testes, succeeded. Therefore, generally speaking, it is not in the first stage that these remedies are found to be so advantageous as in the chronic.

The other plan I shall give in the words represented to have been used by Sir Astley Cooper in his Lectures:—"When the patient applies to you for his first clap, there will be generally a great deal of inflammation, and I advise you to give the sulphate of magnesia with the infusion of senna. An ounce of the sulphate of magnesia may be mixed with six ounces of the infusion of senna, and three table-spoonsful given two or three times a-day, so as to purge the patient very actively. You may afterwards give the submurias hydrargyri with extract of colocynth, but merely as a purge; for if it were to act as a mercurial, I would not give it at all. There is no necessity for giving calomel, unless you wish it to act on the liver, as well as on the intestinal canal. Having purged the patient pretty freely, you will direct him to take diluting drinks, of which he can hardly take too much. Two drachms of the carbonate of potash, or the sub-carbonate of

soda, should be taken in a quart of some diluting drink in the course of a day: capillaire, or tea, will answer this purpose very well: some advise the gum of acacia, but whether it does any good or not, I do not know. I have found the liquor calcis a very excellent diluent in this disease. Soda water is often useful, but it must be ascertained whether it produces irritability of the bladder; for, in some persons, it increases irritability. If it increase very much the inclination to make water, it should not be persisted in; if it do not produce this effect, it is a very excellent diluent. The penis should be suffered to hang for a considerable time in warm water, which will relieve the inflammation, and produce nearly all the good of a warm bath. When the ardor urinæ and pain from chordee are very severe, twenty drops of the liquor potassæ, with from three to five grains of the extract of conium, in the mistura camphorata, may be given with considerable advantage. This is the plan which you should pursue during the first week. You may then apply lint, dipped in the liquor plumbi subacetatis dilutus, to the part. Do not use an injection in the first instance, but pursue the plan I have pointed out to you during the first ten days."

Having frequently tried this plan of treatment without success, I had recourse to that which shall now be described, and I can recommend it strongly from its superior success.

1*st stage*.—If the inflammation be severe and extensive, with much *ardor urinæ*, swelling of the penis, and chordee, I open a vein, particularly if the patient be young and robust, and if the pulse be full or hard, and in this manner make a speedy impression upon the inflammation. The bleeding is to be followed by the use of saline purgatives, given after the exhibition of a moderate dose of calomel combined with any other laxative in common use; the antiphlogistic regimen; and perhaps also a solution of tartar-emetic. By these means, the severity of the inflammation will in general be quickly subdued, and the first stage shortened. After this I have often seen the greatest advantage from the immediate employment of cubebs, the balsam of copaiva, as well as from astringent injections thrown into the urethra. In some cases where bleeding is inadmissible, and where the inflammation produces

pain in the perinæum, much benefit may be derived from the repeated application of a dozen or two of leeches. *Ardor urinæ*, *dysuria*, and *chordee*, are most effectually mitigated, in cases not requiring the active treatment above recommended, by lintseed tea containing a small proportion of the nitrate of potass, as also by anodyne injections thrown into the rectum. A very useful remedy is to be found in pills composed of equal parts of camphor and hyosciamus, of which two may be taken every second, third, or fourth hour, till the patient be relieved.

The tinctures of muriate of iron and iodine have been much praised.

2*d stage*.—It frequently happens, however, that we are not consulted till the second or chronic stage has taken place. Even then, I have seen considerable advantage from the application of leeches to the perinæum, more particularly in old subjects, and when the inflammation had extended far down the urethra. It is in this stage that the effects of cubebs, balsam of copaiva, and astringent injections are so beneficial, provided there be no tendency to stricture, to ascertain which, a bougie is to be introduced; and if one should be discovered, it will be in vain to use any remedy, till it be removed. The usual injections employed, are those composed of the acetate of lead, or sulphate of zinc, at first in about the proportion of a grain to the ounce of water. Sometimes these substances are united, forming a solution of the acetate of zinc, the sulphate of lead being precipitated; the solution should be carefully strained before using. An infusion of green tea is also often serviceable. An essential oil of copaiva has been introduced into practice, but it is by no means ascertained whether it possesses any advantages over the common balsams. An agreeable method of using copaiva, is by making equal parts of the balsam and essence into pills, with the carbonate of magnesia, sixteen or eighteen of which to be taken daily.

In treating the disease in females, the same principles are applicable; and when injections are ordered, care should be taken that they be not thrown into the vagina only, which generally happens unless instructions are given where to find the urethra. It has been mentioned already, that a trouble-

some prurigo sometimes affects the labia, nymphæ, and clitoris, for the cure of which, it is necessary to pay great attention to the bowels, to use ablutions of the parts every second or third hour, with astringent washes; and in obstinate cases, the application of a solution of the nitrate of silver is necessary. Confinement to the horizontal posture, and even general bleeding, are called for, particularly when the parts are inflamed and much swollen.

Inflammation of the Mucous Membrane of the Bladder.

This disease most frequently affects the neck of the bladder, and is generally recognized by pain and swelling in the hypogastric region, the pain being increased by pressure, with a sense of internal heat and tension, frequent desire to make water, and extreme difficulty in passing a few drops, notwithstanding violent bearing down efforts; occasionally indeed there is complete retention. There are also considerable pain and burning heat in the urethra, sometimes, however, only at its orifice, with a sense of itching in its course. The bladder sometimes becomes greatly distended, and indeed, it may be mentioned, that the distention is sometimes the cause of the inflammatory action. If the disease is not soon mitigated, tenesmus, tympanitic distention of the abdomen, pains in the loins, and febrile symptoms, take place.

There is also a chronic form of inflammation of the bladder, which occurs in old people, and is often occasioned by stone, which terminates in thickening, and even ulceration of the mucous membrane, with very considerable hypertrophy of the muscular structure of the organ; and it is in these cases that the discharge of a large quantity of mucus takes place.

This disease terminates by what is called resolution, and by becoming chronic, when pus is sometimes discharged. Gangrene is exceedingly rare; peritonitis is a more frequent occurrence, owing more to the distention of the bladder, than to the extension of the inflammation from one tissue to the other. Ulceration is rare. There is a fine specimen, however, of this termination of inflammation of the bladder, in my Museum, which I owe to Mr Fraser, surgeon of the Flag Ship of Admiral Napier. The subject of this interesting case was

a Portuguese sailor, Francisco Jose, aged 40; the following statement is extracted from Mr Fraser's communication :—

"He complained of pain in the epigastric region, on 25th March at 7 P. M.—Stated that he had not voided urine for eighteen hours. Pulse feeble. On introducing the catheter, about one ounce of bloody urine was evacuated. Fomentations to the abdomen. Ten drops of muriated tincture of iron were given occasionally.

26*th*.—Pain still continues, but is not aggravated by pressure. Much distention of abdomen; no urine voided since last report. The catheter again introduced, and a very large quantity of urine was evacuated. Fomentations continued, and an ounce of castor oil exhibited.

2 P. M.—Bowels not opened by the oil. Pain is now increased on pressure. ℥ss. of oil repeated, with ℥i. of sweet spirit of nitre; large poultice to abdomen. 7. 50. No alteration in symptoms. Again relieved by the catheter.

27*th*. Passed a good night. Pain of abdomen relieved. Bowels freely opened. Pulse still feeble.—6 P. M. Declared that the medicine could do him no good, and that he would soon die. Has walked about during the day, and there was nothing very remarkable in his appearance indicative of danger.

At 7 P. M. he was moribund, and died soon afterwards.

28*th*. *Sectio cadaveris*.—Viscera of abdomen and thorax healthy. About a pint of urine was found in the abdomen. The peritoneum, nevertheless, presented a healthy appearance. There was no unusual vascularity, no effusion, or adhesions. The bladder very much contracted, presented an ulcer, about three-fourths of an inch in length, at the fundus, forcing a free communication between the cavity of the bladder and the abdomen. The prostate gland of natural size, and healthy in appearance.

Causes of Inflammation of the Bladder.—Individuals subject to gouty and cutaneous diseases, as well as those affected with dyspepsia, are liable to this complaint. The application of cold; the use and particularly the abuse of ardent spirits; the external or internal use of cantharides, and small doses of turpentine, together with acrid urine, are also occasional

causes of this disease, particularly in individuals who are afflicted with strictures in the urethra.

Treatment of Inflammation of the Bladder.—Bleeding, general and local; the hip-bath, gentle laxatives frequently repeated, emollient and mucilaginous diluents, and opiates, particularly *per anum*, ought to be had recourse to, according to the severity of the disease and sufferings of the patient; but the introduction of the catheter into the bladder must be regarded as a principal remedy, and ought to be had recourse to as soon as possible. This is not only serviceable by drawing off perhaps a large collection of water, thereby relieving the distention, but sometimes by removing a small quantity of acrid, high-coloured urine, which mitigates the patient's sufferings immediately. In this case also, the employment of camphor and hyosciamus will be beneficial; and when the disease becomes chronic, I have seen cubebs and copaiva useful. In instances where we have good evidence that acrid urine is the cause of the disease, it will be found serviceable to inject tepid water into the bladder, provided it is not allowed to be retained; this means is also recommended when the inflammation becomes chronic. Rubefacients are serviceable, both in acute and chronic inflammation of the bladder. Tincture of cantharides given internally, and small doses of turpentine, are beneficial in some cases, but are to be used only in chronic forms of the complaint of long standing, when we want to rouse a little action. It need scarcely be stated, that after there is evidence of stone in the bladder, the first opportunity should be seized, which the local and general symptoms will admit, to extract it by the usual surgical operation.

Inflammation of the Kidneys.

The term Nephritis has been applied to this disease, the causes of which are much the same as those of inflammation of the bladder. Gouty subjects, and others who are frequently troubled with rheumatism and lumbago, and also with eruptions, are often affected with nephritic complaints, as well as those who are subject to dyspepsia. The abuse of spirituous and malt liquors, the too frequent use of diuretics, the

employment of cantharides, sudden changes of temperature, suppression of habitual discharges, and the recession of eruptions, retention of urine, external injuries, irritation produced by the presence of a calculus in the kidney, and inflammation of the urethra and bladder, extending to the kidneys by continuity of surface, are all exciting causes of the disease.

Symptoms of Inflammation of the Kidneys.—This disease generally commences, like other inflammations, with rigors, followed by pain and fever, which vary in intensity. The pain is generally severe and lancinating, but sometimes is obtuse, with a sense of increased weight, which is felt in one or both lumbar regions; it often extends to the bladder, the penis, the groins, and scrotum, and sometimes even to the thighs; and is increased by pressure and motion, as well as by taking in a full breath, and efforts made at stool. In slighter cases, the patient complains only of a sensation of heat and weight, sometimes of gnawing constrictions in the loins. The urine is scanty, and passed drop by drop, of a red colour, and sometimes is entirely suppressed. Besides these symptoms, there are often a feeling of faintness, nausea, and bilious vomiting, borborygmus, oppression at the præcordia, hiccup, tympanitic distention of the abdomen; occasionally there is diarrhœa with tenesmus; at other times the bowels are constipated, and numbness and retraction of the testicle on the affected side are complained of;—if both kidneys be affected, there is retraction on both sides. There is likewise fever, and the pulse is generally hard. Sometimes the skin is covered with perspiration having a urinous smell; at other times it is dry and hot.

These symptoms are often variously combined, and are sometimes modified by the occurrence of great restlessness, headache, and the passage of bloody urine, which, however, on some occasions, is clear and limpid, although it may subsequently deposite a white sediment.

This disease is rarely fatal, although the bodily pain is perhaps fully as intense as in any other malady,—the product of inflammation, and accompanied by fever. It rarely terminates in extensive suppuration in the substance of the kidney, but I have sometimes seen small abscesses in individuals

who died of the ordinary fevers of this country, which were treated as typhus fevers, and where no suspicion was entertained during life that any local disease existed. Sometimes the matter escapes and finds its way into the pelvis of the kidney, and from thence into the bladder; on other occasions, the inflammation seems to be confined to the lining membrane of the pelvis, which is found greatly enlarged and distended with pus, instances of which have fallen under my observation within the last few years; these were also treated as idiopathic fevers of the typhoid type. Cases are on record, where the suppuration has been so extensive, that the substance of the kidneys has been entirely destroyed. It is rare for the pus to escape into the cavity of the abdomen, and equally rare for the abscess to point externally; but instances have been known where the matter has found its way into the colon, one case of which I have seen. It is said that gangrene occasionally ensues, but such a termination must be extremely rare; it is probable that the natural progress towards decay has been mistaken for gangrene. When suppuration takes place, the more violent feelings subside; a throbbing sensation, and a sense of weight, are said to occur, with alternate chills, slight flushes of heat, and profuse sweating.

In chronic inflammation, induration of the kidney is produced, and sometimes it is completely disorganized. This diseased condition of the kidneys shall be fully illustrated in a subsequent part of this volume, in the Chapter on Dropsy.

Treatment of Inflammation of the Kidneys.—Antiphlogistic means, such as are recommended for the cure of other inflammations, are to be had recourse to. Copious venæsection, repeated according to circumstances, and local bleeding, which is better effected in this particular disease by cupping the loins than by applying leeches, are highly necessary. Fomentations, applied as hot as they can be borne to the loins, are peculiarly soothing, fully more so than the general warm bath, which, however, is not to be neglected; gentle laxatives, particularly of the saline kind, are to be frequently repeated; lintseed tea, or any other mucilaginous drink containing small proportions of the nitrate of potash, is to be taken, but diuretics

are not to be exhibited until the acute stage is subdued. Large injections of tepid water *per anum* are often found to produce temporary relief, and should therefore be frequently used. Rubefacients, particularly mustard plasters, applied to the lumbar region, are found beneficial, but are by no means to be used till towards the end of the acute stage.

CHAP. II.

CALCULUS IN THE KIDNEYS,—BLADDER,—AND OTHER PARTS OF THE URINARY PASSAGES.

THE urine is one of the most complicated fluids secreted by animals; it is composed of acids, alkalies, calcareous earth, and other substances hereafter to be noticed.

The substances hitherto discovered in urinary calculi are lithic, sometimes called uric acid—phosphate of lime—ammoniaco-magnesian phosphate—oxalate of lime—cystic oxide, with a variable proportion of animal matter cementing their ingredients. According to the best authorities, it would appear that these substances seldom exist singly, yet some of them generally prevail in a sufficient degree to impart to each stone a peculiar character. Dr Marcet has given the following classification:

1. Lithic calculus;—2. bone-earth calculus, principally consisting of phosphate of lime;—3. the ammoniaco-magnesian phosphate;—4. the fusible calculus, consisting of a mixture of the two former;—5. the mulberry calculus, or oxalate of lime;—6. the cystic calculus, consisting of the substance called by Dr Wollaston cystic oxide;—7. the alternating calculus, or concretion, consisting of two or more different species arranged in alternate layers;—8. the compound calculus, the ingredients of which are so intimately mixed, as not to be separable without chemical analysis;—9. calculus of the prostate gland.

1. *Lithic Calculus.*—So called from the preponderance of lithic acid, which substance was first discovered by Scheele. This is a hard inodorous concretion of a brownish or fawn colour, sparingly soluble in water, but easily dissolved by solutions of either of the fixed alkalies. It is also soluble in nitric acid. When exposed to the action of the blow-pipe, it

blackens, emits a peculiar animal smell, and gradually evaporates, leaving a little white alkaline ash.

2. *The Bone-earth Calculus, principally consisting of Phosphate of Lime.*—The existence of a urinary concretion, consisting entirely of phosphate of lime, was first pointed out by Dr Wollaston, who gave the following description of its appearance: "Its surface is generally of a pale brown, and so smooth as to appear polished; when sawed through, it is found very regularly laminated, and the laminæ in general adhere so slightly to each other, as to separate with ease into concentric crusts." When powdered, this calculus is very soluble either in the muriatic or nitric acids. Under the action of the blow-pipe it first blackens, but soon becomes perfectly white.

Dr Marcet thinks that calculi entirely composed of pure phosphate of lime are very rare.

3. *The Triple Calculus, or Ammoniaco-Magnesian Phosphate.*—Dr Wollaston also discovered this triple salt as a constituent of urinary concretions, although calculous masses consisting solely of this substance are perhaps never met with. Calculi in which the ammoniaco-magnesian phosphate prevails, are generally whiter and less compact than those of the former class. An ammoniacal smell is emitted under the blow-pipe, the fragment diminishes in size, and if the heat be strongly urged, an imperfect fusion takes place, leaving a phosphate of magnesia.

4. *The Fusible Calculus.*—With the exception of the lithic, this kind of calculus occurs more frequently than any of the others. It is also in general whiter, and more friable, sometimes resembling a mass of chalk. It likewise appears in the form of a spongy and very friable whitish mass, without a laminated structure.

5. *The Mulberry Calculus, or Oxalate of Lime.*—It was Dr Wollaston who first discovered this substance in urinary calculi. Although named mulberry from its external resemblance to that fruit, yet we are assured by Dr Marcet, that a number of calculi of this class occur, which, far from having the mulberry appearance, are remarkably smooth, and pale coloured; and it is conjectured, that the dark colour of the tuberculated calculi may arise from imbibation of blood.

6. *The Cystic Oxide Calculus.*—This calculus was first discovered by Dr Wollaston, and resembles more nearly that of the triple phosphate of magnesia, than any other sort; but is more compact, has no distinct laminæ, and appears as one mass confusedly crystallized; it has a yellowish semi-transparency, and a peculiar glistening lustre, like that of a body having a high refractive density. The solvents of the cystic oxide are too numerous to be particularized here; but it may be mentioned that it is not soluble in water, alcohol, acetic, tartaric and citric acids, or saturated carbonate of ammonia.

7. *The Compound Calculus in distinct layers.*—Calculi of this description are frequently seen in practice, and shew lithic strata alternating with layers of oxalate of lime, or with its phosphate. Dr Marcet has given a representation of a calculus, in which lithic acid forms the nucleus, pure phosphate of lime being next to this, and so on, the fusible crust at last enveloping the whole concretion.

8. *Compound Calculus, with the ingredients intimately mixed.*—This kind is comparatively rare; but Dr Marcet states, it may be sometimes recognized by its more or less irregular figure, and less determined colour,—by being less distinctly, if at all stratified,—and by often possessing a considerable hardness. When exposed to analytical processes, confused results are obtained, which soon proclaim its compound nature.

9. *Calculus formed in the Prostate Gland.*—Calculi formed in this situation often give rise to symptoms which are mistaken for the effects of stone in the bladder. According to Dr Wollaston, they all consist of phosphate of lime, not distinctly stratified, and are tinged with the secretion of the prostate gland; the salt is in the neutral state, without a redundance of calcareous earth as in bones. Their external appearance is similar to that of the lithic calculi; but Dr Marcet has shewn, of how much consequence it is in a practical point of view, to be able to detect the difference. For full information upon these points, and upon all others connected with the formation of urinary calculi, I must refer the reader to Dr Marcet's excellent work on calculous disorders, published in 1819.

Besides these, Dr Marcet describes two other kinds of calculi, the names of which I shall only mention:—1*st*, The Xanthic oxide, which makes an approach to the cystic calculus, but gives a bright lemon residuum on evaporating its nitric solution, which is not yielded by the cystic calculus. 2*d*, Fibrinous calculus, so called from its possessing properties similar to those of the fibrine of the blood, and supposed to be formed by a deposit from the blood.

Calculus in the Kidney.

Symptoms.—Long-continued obtuse pain is felt in the lumbar region, shooting downwards, and producing a numbness in the thigh of the affected side, with painful retraction of the testicle, increased on taking exercise. There is a frequent desire to make water, which is discharged in small quantity at a time, and generally of a deep-red colour, often depositing a brick-coloured sandy sediment. A great many cases have been recorded, where calculi of considerable size have been lodged in the kidney, without producing much inconvenience to the patient; a remarkable instance of which is given by Dr Marcet. The state of parts is well represented in his first plate, which shews the pelvis of a diseased kidney much enlarged, and distended by a number of calculi closely pressed against each other; other calculi are seen in the enlarged infundibula. The patient died under Dr Marcet's care at Guy's Hospital, of hydrothorax, "without any symptom having occurred which could lead me to suppose that there was any disease in the urinary organs." There is also a remarkable preparation in my Museum, taken from the body of a woman who died of what was considered to be typhus fever; the kidney was enlarged, of scirrhous hardness; the ureter was destroyed, and a large calculous mass was found in the substance of the kidney. Had the woman lived long enough, it would have been discharged by stool. It was in the left kidney, to which the descending colon was strongly attached; several ulcerations are to be seen through the intestinal tube, communicating with the calculus. The woman had been long slightly ailing, and there can be no doubt that the febrile symptoms which occasioned her death, were produced by local

irritation; she had been for some time affected with diarrhœa, and occasionally the stools were bloody.

We are told by Dr Marcet, that when a calculus is lodged in the kidney, a suppuration and gradual wasting of the organ take place, in which circumstances the disease is generally accompanied by long-continued pain in the lumbar region, and by a discharge of purulent urine, not unfrequently attended by copious hæmorrhage.

Some years ago, I extracted a stone, weighing one ounce and 35 grains, from the bladder of a female, by dilating the urethra, which was effected by sponge-tents. The patient died some time afterwards from apoplexy, and on dissection, the arteries of the body were found generally ossified; one kidney was in a state of atrophy, its emulgent artery being very much diminished in size at its origin by an ossific deposition. The other kidney was considerably enlarged, although its structure appeared to be sound; and another calculus, the size of a small bean, was found in the pelvis, about to enter the ureter, which was much dilated through its whole course, and appeared as if it had formerly given passage to the nucleus of the large stone which had been previously extracted. The symptoms under which this woman had laboured for a number of years, were not of so marked a character as to attract the attention of a great number of medical men in Edinburgh, who had seen her at different times. This perhaps may be fairly attributed to the combination of symptoms produced by the general disease in the coats of the arteries.

It would appear probable, that acute pain and great suffering are produced more frequently when a calculus is in its passage from the kidney through the ureter, than at any other time; and I believe it is generally remarked during the passage of a calculus, that the pain is excruciating, not only in the loins, but also in the testicle from its retraction; yet the pulse remains for the most part unaffected, which is a phenomenon also observed during the passage of gall-stones through the biliary ducts into the duodenum. In other respects, there is a close resemblance between the symptoms of stone, and

those sometimes occasioned by inflammation of these parts, when no calculous concretion exists.

Treatment of Urinary Calculus in the Kidney, and during its passage from thence into the Bladder.—It has already been shewn, that calculi may exist in the kidney without giving rise to any very marked symptoms; nevertheless, when attending a patient complaining of dyspeptic symptoms, accompanied by pain in the lumbar region, it is our duty to examine the state and appearance of the urine. The remarks already made must be kept in recollection, and particularly that renal calculi are chiefly composed of lithic acid, the excess of which gives to the urine a red colour, and when there is any deposition on the sides of the vessel, it will be of a red or pinkish colour. In such circumstances, the use of alkalies will be found very serviceable, and more particularly Henry's calcined magnesia. The alkalies in common use are lime water, the sub-carbonates of soda and potash; and I frequently exhibit the liquor potassæ in milk. The warm bath, hot fomentations to the loins, and rubefacients, may be employed, and will frequently relieve the pain. Local bleeding by cupping may also be had recourse to when necessary. Opiates are serviceable in allaying pain, particularly when it is violent, and when suspicion is entertained of a calculus passing through the ureter; the dose must at that time be proportioned to the severity of the sufferings; indeed, general bleeding is then frequently necessary. In both conditions, gentle laxatives are indispensable, assisted by large tepid injections.

Stone in the Bladder.

Symptoms.—A frequent desire to pass urine, an uneasy sensation in the glans, and pain in the region of the bladder, are the chief symptoms complained of. The uneasiness in the glans becomes at last very acute. The urine varies in appearance, depositing sometimes a red, at others a white sediment; there is often a considerable quantity of mucus, sometimes tinged with blood, produced no doubt by constant irritation, and inflammation of the mucous membrane of the bladder; the urine sometimes flows only drop by drop, with great straining, owing perhaps to the enlargement of the

prostate gland, or to the stone being lodged in the neck of the bladder. Occasionally the urine flows in a full stream, but suddenly stops with violent pain, which is generally attributed to the stone pressing on the orifice. This inconvenience is frequently relieved by change of posture. Thus I have known several patients who were never able to make water, unless lying on one side; and instances are recorded by Sir James Earle, of patients who, "in order to evacuate their urine, were literally obliged to stand on the head almost in a vertical position."

The symptoms above enumerated are not always present, but come on at times in severe paroxysms, which are known by the term "fits of the stone;" these are occasionally produced and exasperated by exercise of any kind, but particularly by riding on horseback. Instances are recorded in which stones of considerable size have been found in the bladder after death, without having produced much, if any previous suffering; but in these cases they have generally been found contained in cysts.

On dissection of patients who have died with calculus, the bladder is generally seen more or less thickened, diminished in size; and the mucous membrane is also frequently found extensively diseased, sometimes ulcerated.

Treatment of Stone in the Bladder.—A stone in the bladder, if small, may pass through the urethra, and this is a frequent occurrence; but when large, the only prospect of curing the patient is by means of a surgical operation, which this is not the place to describe. Various chemical agents, some of acid, others of an alkaline nature, have been recommended to be thrown into the bladder, for the purpose of dissolving calculi; but as it has been already shewn that the composition of urinary calculi is various, and that each may consist of different substances in distinct layers round a common nucleus, little benefit can be expected from their employment. Besides this objection, the introduction of such fluids must exasperate the patient's suffering in all cases by irritating the bladder, if used sufficiently concentrated to exert any solvent effect.

As palliatives, gentle laxatives, tepid injections thrown into

the rectum, opiates, perfect rest, the warm bath, and attention to diet, will be found beneficial.

For further particulars respecting the treatment of stone in the bladder, and for many ingenious remarks concerning the operations of remedies, I must refer the reader to Dr Marcet's work.

Stone in the Urethra.

Symptoms.—At first this affection may be mistaken for stricture, but the impression will generally be removed by the introduction of a metallic bougie or a catheter. But even if neither of these be used, the nature of the case is soon unequivocally announced by a partial or complete retention of urine, by acute pain in the situation of the calculus, by the hardness of its feel, and by subsequent inflammation, and tumefaction of the part.

This also is a case for the surgeon; but I may mention a plan which prevails among quacks, of giving strong diuretics to produce a copious secretion of urine, with a view of expelling the stone by creating a deluge; but this is to be regarded as a rash and dangerous practice, which no sensible man would venture upon, because it might render the operation of puncturing the bladder unavoidable.

Stones embedded in the Prostate.

Symptoms.—These are very obscure; their detection is difficult, and there is no decisive diagnostic. It may be mentioned, however, that there is generally a difficulty in making water, with uneasiness at the neck of the bladder; when the catheter is introduced, an opportunity may be taken of making an examination *per rectum*, when the prostate gland will be found enlarged. Surgeons, however, cannot always expect to be so fortunate as Sir A. Cooper, who on one occasion felt the stone grate against the catheter; but it is necessary in all gravelish cases to make a very minute examination.

With respect to the occurrence of calculous disorders, it may be mentioned, that males are more liable than females, —that they chiefly affect the studious and sedentary,—and it is rare to see an instance of stone in warm climates.

CHAP. III.

SUPPRESSION OF URINE—RETENTION OF URINE—INCONTINENCE OF URINE.

Suppression of Urine.

A PARTIAL and sometimes a total suppression of urine takes place in most cases of fever, and for the most part also in severe inflammation of various organs; and it has been already shewn to be a consequence of inflammation of the kidneys. But as the term is now used, I mean to express a suppression of urine from failure in the secreting powers of the kidneys, sometimes, though not generally, accompanied by violent suffering. Suppression of urine, however, leads sooner or later to very serious consequences, more particularly by producing a cerebral affection, which for the most part terminates fatally. It also appears to be connected with dropsies, of which I shall speak under the proper head. Suppression of urine generally occurs in people who are past the meridian of life, although there are many exceptions. All the patients seen by Sir Henry Halford, before the publication of his paper in the 6th volume of the Medical Transactions, "were fat, corpulent men, between fifty and sixty years of age;" nevertheless, we sometimes meet with the disease in children. It is, I believe, most frequently observed in gouty habits after the long-continued application of cold, or subsequent to the suppression of an eruption, or some habitual discharge. Dissection has proved, that it is also the consequence of scirrhus, and other disorganizations of the kidneys themselves.

In the genuine disease, there is no desire to make water, but I have seen two cases where almost total suppression had continued, in one for months, in the other for some weeks, and in which a pretty constant desire to make water existed, it being only once in two or three days, however, that a small quantity not exceeding two or three table-spoonsful was evacuated, of such an acrid nature as to scald the urethra. There is neither pain nor tumefaction above the pubes denoting a full state of the bladder; but to determine the point, it is wise to introduce a catheter, which, at all events, has the effect of satisfying the patient. Nausea and constipation, and an occasional feeling of sinking, generally attend this complaint. The pulse and skin continue for some time natural, but the former is occasionally slower than usual, which always denotes danger.

In some cases, the symptoms are very distressing from the first, there being frequent and violent vomiting, hiccup, restlessness, and severe headache, with pain in the back. In the cases produced by disorganization of the kidney, it will be found, upon inquiry, that pain, and a sense of heat in the loins, have been much complained of previous to the suppression. It appears to me that a number of the cases of this disease, published by Dr Abercrombie, in the 17th volume of the Edinburgh Medical and Surgical Journal, entitled "Ischuria Renalis," were really not cases of the disease, but of inflammation of other organs, attended, as is most frequently the case, with more or less suppression of urine; I more particularly allude to three out of the five cases which that gentleman has recorded.

It has been very generally remarked, that there is great sympathy between the functions of the skin and the kidneys, for during warm weather, when there is a copious secretion from the skin, little urine is discharged; and in cold weather, when the determination to the skin is diminished, the urine is observed to be in larger quantity. In the disease now under consideration, there is sometimes profuse sweating, and in three of Sir Henry Halford's cases, the perspiration was observed to have a strong urinous smell.

For the most part this disease is speedily fatal, and seems to be so by producing diseased action in the brain, terminating

in coma and death. In other cases, a train of symptoms denoting inflammation of the brain occurs with paralysis; and the first instance in which I ever remarked the combination of rigidity of the flexor muscles and paralysis, was in a case of this kind.

Sir Henry Halford states, in relating the history of one of his cases, that "the patient sat up in bed and conversed as usual, complaining of some nausea, but of nothing material in his own view; and I remember that his friends expressed their surprise that so much importance should be attached to so little apparent illness. The patient's pulse was somewhat slower than usual, and sometimes he was heavy and oppressed. I ventured to state, that if we should not succeed in making the kidneys act, the patient would soon become comatose, and would probably die the following night; for this was the course of the malady in every other instance which I had seen. It happened so; he died in thirty hours after this in a state of stupefaction." It must be observed, however, that the cases do not always terminate fatally, and that many run a much longer course.

Three cases have fallen under my care in men far advanced in life, in two of which the suppression was almost complete for two or three weeks at a time, without giving rise to any troublesome train of symptoms, and for many days it was entirely suppressed; I believe they are both still alive, at least I know for a certainty that one is. Dr Parr, in his Dictionary, under the article "Ischuria," mentions a similar case, in which no urine was secreted for six weeks; and Dr Laing, in 10th vol. Edinburgh Medical and Surgical Journal, has described a case in which there was a complete suppression of urine for nine days, and yet the patient got well.

Many years ago I saw a very interesting case, of which the following is a sketch.—A gentleman aged 72, who had always enjoyed good health, with the exception of seven or eight severe attacks of gout, under which he had formerly laboured, was seized with a partial suppression of urine for four months, when it became almost entirely suppressed. His illness continued for ten months, during which he fell off in flesh; his strength diminished; and his temper became very irritable.

During the last four months of his life, when the urine was almost totally suppressed, he complained frequently of headache, and weakness of one side of his body. His face and head were often observed to be flushed, particularly when irritated, and after meals. He had frequent desire to make water, (probably owing to disease of the prostate, which was found after death,) but rendered only a table-spoonful or two, once in two or three days; nevertheless he used to stand for an hour with the chamber-pot in his hand, supposing that he was making water all the time; and he had also a notion that he was always perspiring very freely, although there was never the least moisture upon his skin. During this time, and up to within a few days of his death, diuretic medicines, and saline purgatives, were assiduously administered; and he was encouraged by his medical attendants to take two or three glasses of strong gin-and-water daily, to assist the secreting powers of the kidneys. It was at this time that I first saw him, and found that he was dying from the effects of inflammation of the brain; besides other symptoms, there was paralysis, with rigidity of one arm. On dissection, the central parts of the brain were found in a state of ramollissement, with effusion into the ventricles, and great vascularity, not only of the membranes, but of the substance of the brain. There was no diseased appearance about the kidneys, but a flabbiness; the bladder was much contracted; the prostate gland was enlarged, indurated, and contained a white calculus in its substance, about the size of a large garden-pea. It is too evident, from the history of the case, that the patient was mismanaged, and that the affection of the brain was altogether overlooked.

Treatment of Suppression of Urine.—Much mischief is occasioned in many cases of diminished secretion of urine, by the indiscriminate employment of diuretics. I believe this class of remedies is chiefly serviceable in promoting an increased flow of urine at the decline of the disease, after the functions of the kidneys have been considerably restored, when a combination of squills, calomel, and digitalis, in the form of pill, in the proportion of half a grain of the two former substances, and two or three of the latter, may be

used and repeated three times a-day. But should the mouth become affected, the calomel is to be omitted. Cream of tartar is also to be given freely, and may be occasionally changed for some vegetable infusion of known diuretic qualities, such as juniper, broom, &c. Balsam of copaiva, oil of turpentine, sweet spirit of nitre, and tincture of cantharides, in small doses, are often administered, and sometimes with effect; but they ought to be given with great caution, and under the restriction already spoken of.

The principal points to be attended to, are to excite the skin and the bowels in a powerful manner alternately, the latter by means of neutral salts dissolved in a large quantity of water. Practitioners should anxiously watch cases of this nature, in order to discover the approach of any affection of the brain, which is to be combated upon the principles laid down in another part of the work. Should there be pain in the region of the kidneys, it may be relieved by local abstractions of blood,—by the application of rubefacients, or even of blisters.

Retention of Urine.

This term ought to be restricted to an inability to evacuate urine from the bladder, which may be more or less distended by the secretion. Retention of urine is sometimes the consequence of a diseased condition of the brain, spinal marrow, or the nerves supplying the bladder itself; it is occasionally a symptom of stone in the bladder, but more particularly of disease of the prostate gland, and stricture in the course of the urethra. It is frequently produced by neglecting to empty the bladder in due time, when the organ subsequently becomes filled to such a degree as to be either paralyzed, or merely unable to act from over-distention.

The symptoms are, pain in the region of the bladder, with frequent and violent desire to make water, and bearing-down efforts, exactly as in labour. Occasionally there is tenesmus, and if the patient be not soon relieved, the pain extends along the course of the ureters to the loins. The distended bladder is to be felt above the symphysis of the pubis; sometimes its fundus reaches as high as the umbilicus. Generally there

are constitutional symptoms, such as fever, thirst, oppression at the præcordia, together with an anxious expression of countenance, and occasionally severe headache.

The danger to be apprehended, is not that the bladder shall burst, but that peritoneal inflammation shall ensue. Instances are stated where sixteen pints of urine have been evacuated from the bladder, which seems almost incredible, if we did not know how greatly the organ is capable of being distended. I have myself seen more than one instance, where eight pints have been drawn off. When describing the appearances fonnd on dissection in erysipelas, the case of a woman was mentioned, where the urine, during a second attack of retention, escaped at the umbilicus, in consequence of the fundus of the bladder becoming attached by adhesive inflammation to the peritoneum corresponding to the umbilicus, and ulcerative absorption taking place. I have now to mention, that four years previously, this woman had had retention of urine for four days, before she was relieved by the catheter, and I was informed that sixteen pints of urine were then evacuated. It appeared from the strength of the adhesion between the fundus of the bladder and the umbilicus, that it was at that period the adhesion had taken place.

We must keep in mind, that a distended bladder sometimes takes place in women during the early months of pregnancy, in connection with a displacement of the uterus, termed "retroversion," in which case its cervix will press against the neck of the bladder or the urethra, and occasion a mechanical obstacle to the flow of urine. Retention of urine also sometimes follows delivery, in consequence of the long continuance of the pressure to which the urethra and neck of the bladder have been subjected, during the passage of the child's head.

Treatment of Retention of Urine.—The principal remedy is the introduction of the catheter, but as this is sometimes objected to by men, from the apprehension of its being a painful operation, and by females from natural delicacy, it is often necessary first to try other expedients. The chief of these, are the use of the hip-bath, or hot fomentations to the region of the pubis; large, tepid, and unstimulating injections into the rectum; the internal exhibition of camphor and opium, or hy-

osciamus, the tincture of the muriate of iron, or sweet spt. of nitre. When these remedies fail, it has been recommended to employ injections of the infusion of tobacco. The use of the catheter may sometimes be avoided by the simple expedient, of pouring water in a continued stream from one vessel to another within the hearing of the patient; but this I imagine can be effectual only when the retention is produced by a spasmodic affection near the neck of the bladder, or by a general paralysis of the fibres of the organ. A medical gentleman lately mentioned to me, that he has rarely failed in relieving the retention, when there was no permanent obstruction, by giving doses of from ten to twenty drops of the vin. nicot. tabaci every second or third hour.

When called to a case of this kind, we must take a general view of the symptoms, the duration of the distention, the general condition of the abdomen, together with the state of the pulse, the heat of the surface, and the expression of countenance, in order to determine whether peritoneal inflammation exists. Should this be the case, general bleeding, or the application of leeches, must be had recourse to: and it must not be forgotten, that when the complaint terminates fatally, the event is in general produced by peritonitis.

In treating this affection, we must not be deceived and lulled into security by the patient's passing a small quantity of urine, as it sometimes dribbles away, when the bladder is ready to burst from over-distention.

Incontinence of Urine.

When a person cannot retain urine in the bladder, but constantly passes it involuntarily as quickly as secreted, he is said to labour under incontinence of urine. It is a frequent attendant on paralytic disorders, which produce atony of the sphincter of the bladder; it may also be caused by acrid urine stimulating the bladder to contract as soon as it has entered it, and also by irritation about the bladder or urethra.

In the case proceeding from paralysis, the best remedies are, the application of a blister to the upper part of the sacrum, —the internal use of the tincture of cantharides, in doses of

from ten to twenty drops three times a-day, in a wine glassful of lintseed tea, or a little mucilage,—and also cold bathing. If it proceed from acrid urine, diluents should be employed, particularly lintseed tea, together with cooling laxatives, and the introduction of the catheter will be found serviceable.

The incontinence of urine which proceeds from irritation or inflammation about the neck of the bladder and urethra, may also be produced by acrid urine, or by sand or gravel passing through the urethra. If there be a superabundance of lithic acid, alkalies should be administered, and in severe cases it is serviceable to throw tepid water into the bladder. Anodyne injections are also to be used. In all cases where there are pain and irritation in the urinary organs, the pills formerly mentioned, composed of equal parts of camphor and hyosciamus, should be administered.

CHAP. IV.

HÆMATURIA, OR DISCHARGE OF BLOOD FROM THE URINARY PASSAGES.

It should be kept in remembrance, that when blood is passed by the urethra, it may proceed from one of three sources, viz. the kidneys, bladder, or urethra itself.

When the discharge comes from the kidneys, the patient complains of a sense of fulness, weight, and dull pain in the loins, accompanied with some degree of faintness and nausea. When from the bladder, a sense of heat and fulness is felt in the hypogastric region, involuntary bearing down, and urgent desire to make water. But active hæmorrhage for the most part takes place from the urethra only, and is generally the consequence of the use of the bougie in cases of stricture. If such a discharge take place from the kidneys or bladder, it will in general be found to depend on external injury. A few months ago I attended a patient who discharged, for the space of a week, a large quantity of florid blood daily; sometimes it flowed from him when in bed, at times when affected with priapism, at others when making water, so that it was occasionally pure blood, and at other times blood mixed with urine. The complaint seemed to have been produced by a long train of sacrifices at the shrine of Venus.

A discharge of blood from the urethra sometimes takes place in the course of purpura hæmorrhagica, as has been already mentioned. A discharge of blood frequently occurs where there is a stone in the bladder, and I have seen it produced by the internal use of cantharides.

Treatment of Hæmaturia.—It is necessary to ascertain whether or not the discharge be confined to the urethra, respecting which the history of the case will generally inform us. If there be considerable pain in the region of the bladder, more

particularly if the bladder be much distended, it will be sometimes found serviceable to introduce as large a silver catheter as can be passed.

In the treatment of active hæmorrhage from any organ, if the pulse be full, and if there be marks of lost balance of the circulation, the beneficial effects of opening a vein in the arm have been long well known. It is to be recommended in this case also, if the pulse be strong, and more particularly if much local pain exist; but in the case noticed above, I depended entirely on the use of the acetate of lead in considerable doses. The patient was kept nine days under the influence of this medicine. During three days he took 5 grains of that preparation, combined with a small proportion of opium three times a-day; and for the remaining six days the quantity was increased to 10 grains thrice a-day. I never had greater reason to be satisfied with the action of any medicine, the only unpleasant effect it occasioned was constipation.

Gentle laxatives, and cold water enemata, are to be employed in all cases of hæmaturia. If there be much constitutional irritation, opiates will be found serviceable, and their use cannot be dispensed with if the patient have lost such a large quantity of blood as to produce a great and permanent impression upon the system. In cases accompanied by vomiting, which is a frequent attendant on excessive hæmorrhages, opium should be given, combined with calomel. The external application of cold may do good in slight cases, if the person be able to sit over a tub or on a bidet, but the application should not be persisted in too long; and it is bad practice, particularly in severe cases, to keep a person's garments constantly wet. It does mischief, by abstracting heat from the body when it cannot be spared, as well as by driving the blood from the surface, and keeping up a tendency to irregular distribution.

The best plan of stopping the discharge of blood which has its source in the urethra, is by pressing that canal in different places between the finger and thumb until the hæmorrhage is commanded, and afterwards to apply a large compress to the part by means of a T bandage, so as to keep up the necessary degree of pressure.

CHAP. V.

DIABETES.

By this term is meant a super-abundant secretion of urine, containing a large proportion of saccharine matter; sometimes, however, the quality of sweetness is wanting. To the former, authors have applied the term *Diabetes Mellitus*, in contradistinction to the other, which has been termed *Diabetes Insipidus*.

It has been recommended, however, that the term "diabetes" should be restricted to those instances in which the urine is saccharine, and I shall follow this suggestion.

It is my invariable plan, both in lecturing and writing, to make marked distinctions between those diseases with which experience and actual observation have made me acquainted, and those respecting which I know little, and that little from the experience and writings of others. In commencing the consideration of this intractable, but rare disease, it is my duty to confess that I know nothing whatever respecting its nature and seat. Since writing the second edition of this work, three cases of diabetes have fallen under my care.

Notwithstanding the attention which this singular disease has attracted, since the celebrated Willis drew the attention of the profession to its investigation in 1684, and although men of powerful minds, assiduous habits, and great practical experience, have been drawn into discussions respecting it, doubts to this day exist, not only as to the nature of the disease, but also the organ principally and primarily affected. True it is, that, by the assistance of morbid anatomical investigations, we have found out some diseased appearance in the

urinary and digestive apparatus; and that, by the aid of chemistry, the morbid character of the urine, and its component parts, have been discovered; yet it has never been explained in a satisfactory manner, whether the diseased state of parts, and the morbid state of urine, stand in relation of cause or effect. Still greater mystery hangs over the subject, when it is known that the kidneys have been found perfectly sound in structure, and unchanged in appearance. Were we to be led, in forming an opinion as to the primary seat of the disease, by the accounts which a majority of patients give of their first symptoms, we should certainly feel disposed to fix upon the stomach, and not upon the kidneys, as the proper seat of the affection; but then the same may be said of almost all the disorders of the urinary system.

Symptoms of Diabetes.—"Diabetes is attended (says Dr Latham,* p. l.) for the most part with a very voracious appetite, and with an insatiable thirst; with a dry harsh skin, and clammy, not parched, but sometimes reddish tongue; and with a frequent excretion of very white saliva, not inspissated, but yet scarcely fluid As the disease proceeds, it is accompanied often with a hay-like scent or odour, issuing from the body, with a similar sort of halitus exhaling from the lungs, and with a state of mind dubious and forgetful: the patient being dissatisfied, fretful, and distrusting, ever anxious indeed for relief, but wavering and unsteady in the means advised for the purpose of procuring it." Diabetes comes on very insidiously; the patient complains of unusual lassitude, and a tendency to perspire on every slight exertion; and although the appetite is much greater than natural, the digestion is seldom good, there being uneasiness in the stomach after eating, flatulent distention, heart-burn, and an irregular state of bowels. Pain is sometimes complained of in the region of the loins; occasionally it is very violent, and there is always a weakness referred to that part of the body. As the disease goes on to-

* Dr Latham has investigated and criticised ancient and modern opinions on this disease, with the greatest ability, in a work entitled "Facts and Opinions concerning Diabetes," 1811, to which I can with the greatest confidence refer my readers for much valuable information.

wards a fatal termination, there is a feeling of exhaustion; difficulty of breathing, together with dropsical infiltration into the lower extremities, and general rapid emaciation, take place; the pulse, which is not usually much affected at the commencement, becomes quick and weak.

The urine is of a straw colour, having a peculiar smell, which struck me to resemble whey that had been allowed to stand till it became somewhat sour; the quantity passed in twenty-four hours has been stated as high as two hundred pounds, (Roche and Sanson, vol. 2. p. 121.); but keeping extraordinary cases entirely out of the question, it is certainly most remarkable, that the urine, in confirmed cases of diabetes, always exceeds the weight of both solid and fluid ingesta. The secretion may be stated at between ten and twenty pounds daily, which obliges the patient to evacuate the bladder very frequently, and disturbs him four or five times during the night, which, by breaking the rest, assists in destroying his health.

The quantity of sugar in diabetic urine is very various, even in the same individual; as much as one ounce has been extracted from each pound of urine, sometimes even more, but the average quantity is not nearly so great. A considerable proportion of saccharine matter has been collected by evaporation, when it could not be detected by the taste; but we are told that the quantity may always be estimated by the specific gravity of the urine. According to the French, the most delicate agents scarcely indicate the presence of the lithic and phosphoric acids, the phosphates of soda, lime, or the ammoniaco-magnesian, which are always present in the healthy state of this fluid.

Diabetes has been generally fatal; its duration has been variously stated from five or six weeks to many months, and even to several years.

Appearances on Dissection in Diabetes.—I have seen two dissections, in which the kidneys to all appearance were in a healthy state, and in which the lungs, and the mucous membrane of the stomach, and of a great portion of the bowels, were diseased, the former being tuberculated, and the latter vascular, the vessels gorged with dark blood, and the mucous

membrane itself soft and pulpy. It has been stated, however, by others, that the only organ in which any morbid structure has been clearly ascertained, is the kidney. Mr Cruickshank, in his work on the lacteals and lymphatics, affirms, that the arteries of the kidneys are generally enlarged in this disease, particularly those of the cryptæ, or minute glands which secrete the urine. In a case which occurred to Dr Baillie, "the veins upon the surface were much fuller of blood than usual, putting on an arborescent appearance. When the substance of both kidneys was cut into, it was observed to be every where much more crowded with blood-vessels than in a natural state, so as in some parts to approach to the appearance of inflammation. Both kidneys had the same degree of firmness to the touch as when healthy; but I think were hardly so firm as kidneys usually are, the vessels of which are so much filled with blood. It is difficult to speak very accurately about nice differences in degrees of sensation, unless they can be brought into immediate comparison. A very small quantity of a whitish fluid, a good deal resembling pus, was squeezed out from one or two infundibula in both kidneys, but there was no appearance of ulceration in either." This description of the condition of the kidneys would most exactly represent that seen in many cases of cholera, in which the secreting power of the kidneys had been destroyed for days.

Causes of Diabetes.—Diabetes attacks men more frequently than women, but seldom earlier than in middle age. I believe it has been found that no rank of society is exempt from its invasion; and it does not appear that any kind of occupation predisposes to it more than another. It is also said to be unknown in warm climates, although I have heard of an instance which occurred in the West Indies. There can be no doubt, however, that it is more frequently seen in cold humid climates, therefore it is said to be more common in Holland and in England than elsewhere; but if this were the case, not only with respect to climate, but other exciting causes generally mentioned, such as "chagrin, vegetable diet, intemperance and other excesses, suppressed eruptions, atonic gout, diseases of the liver, lungs, &c. and ill-conditioned ulcers," we should see the disease every day, whereas it is avowedly rare. A

curious fact may be mentioned, which was first stated by Chesselden, and is mentioned at page 139. of his Anatomy, viz. that sweet urine is sometimes secreted in cases of chronic carbuncle.

Pathology of Diabetes.—From all the facts hitherto collected, very different pathological conclusions have been drawn, and supported by men of acknowledged celebrity.

1. It has been supposed that the disease depends upon a morbid condition of the stomach, or other viscera connected with the assimilation of the food, and the process of chylification.

2. On the imperfect animalization of the blood.

3. Upon the retrograde action of the lymphatic vessels.

4. Upon a morbid condition of the kidneys themselves.

Being so imperfectly acquainted with the disease, I cannot do better than condense the opinions which have been collected by Dr Mason Good in his "Study of Medicine."

1. It seems to be a most extensively received hypothesis, that diabetes depends upon a diseased action in the stomach, &c. Dr Mead, observing that the disease frequently occurred in those who had been accustomed to live intemperately, and who were chiefly addicted to the use of spirits, attributed it to affections of the liver, which opinion was very generally received in his time.

Dr Rollo, formerly Surgeon-General of the Artillery, was among the first who referred the disease to the stomach; he believed that it consists in an increased action and secretion in this organ, with a vitiation of the gastric juice, and probably a too active state of the lacteal absorbents; while the kidneys and other parts of the system, as the brain and skin, are only affected secondarily.

He supposed that the blood is imperfectly formed, and deficient in its saline principles, which are converted into saccharine matter by the chylopoietic and assistant chylopoietic viscera; but a fatal objection to this part of the hypothesis is, that it has been found, by experiments performed by Wollaston and Marcet, that blood taken from diuretic patients before it has reached the kidneys, contains its proper salts, and shews no vestige of sugar. There can be no doubt, how-

ever, that the first symptoms of which patients complain are referred to the stomach, and that this organ has been found with diseased appearances after death. A stomach was lately presented to me, shewing this fact in a remarkable degree; there is a drawing of its appearances when recent in my possession, and the stomach itself is dried and preserved, and still shews these appearances.

2. With respect to the second opinion, that diabetes depends upon an imperfect animalization of the blood, the hypothesis originated with Willis immediately after he detected the existence of sugar in diabetic urine, since which it has been subscribed to by many distinguished pathologists, among whom we find the name of Sydenham. The chief support upon which this opinion is founded, is the appearance of the blood itself, which is dark-coloured, has what has been termed a dissolved appearance, looks like treacle, and when allowed to stand after being drawn from the system, does not separate much, if any, serum; but on the other hand, the experiments of Wollaston, Marcet, and others, which go to shew that the blood contains its proper salts, and no vestige of sugar, have proved equally fatal to this as to the last hypothesis.

The theory, however, is advocated by Dr Latham, who believes the action of the stomach, as well as of the kidneys, to be healthy, and considers the excessive appetite to be a "natural sensation calling into its full exercise that organ through which the constant waste of the body must be directly supplied, and without which the patient must soon inevitably perish," (p. 230.) He endeavours also to shew that the elements of sugar may exist in the blood, although in substance it is not discoverable, being "so weakly and loosely oxygenated, as to be again readily evolved by the secretory action of the kidneys, not from any fault in the kidneys themselves, but from the regular and natural exercise of their functions, in separating from the imperfect blood such matters as are not properly combined with it." (P. 97.)

3. The third opinion, that diabetes depends upon a retrograde action of the lymphatic vessels, first originated with the son of the distinguished author of the Zoonomia, by whom it was afterwards very keenly supported. According to his

view, the saccharine matter is formed in the digestive organs, and then carried by a retrograde motion of the lymphatics to the kidneys. In reference to this subject, Mr Cruickshank asks the following query (at p. 69.) "Why should the chyle flow retrograde into the lymphatics of the kidney, and not into the lacteals themselves? and why are not the feces fraught with a similar fluid, as well as the urine?"—These are unanswerable queries, and are fatal to this hypothesis.

4. Diabetes has been referred to a morbid condition of the kidneys themselves. This opinion was entertained by the Greek writers, who supposed the kidneys were in a state of great relaxation, debility, and irritability. A considerable number of the profession have adopted the opinion, that the kidneys are really the primary seat of the disease; and the majority of these ascribe it to some degree of inflammation, although by some it is attributed to spasm. Cullen adopted this last notion so completely, that he placed diabetes in his class Neuroses, and order Spasmi, immediately before hysteria and hydrophobia; for doing which he has given, as Dr Mason Good observes, a most unsatisfactory reason. Many suppose, then, that there is no necessity to look further than the kidneys for the seat of the disease, and that its nature is to be attributed to a *morbid irritation, connected with an inflammatory action of a peculiar kind*, therefore it is believed by them to be a very simple and uncomplicated disease. Dr Mason Good is a strenuous supporter of this view; and the following are the most forcible of his arguments. It is well known that the secretion of the kidneys is capable of being increased by various agents. He believes that a strong analogy exists between dropsy and diabetes; and as a large quantity of fluid is thrown out, in the former, from the excited secretory vessels, there can be little difficulty in believing, that from a primary morbid excitement in the kidneys themselves, they may eliminate as much urine as is ever passed by diabetic patients. He also considers the analogy between dropsy and diabetes to be strongly supported by the existence of similar constitutional effects; the whole body, drained of the thinner parts of the blood, is weakened and emaciated, and most of its functions are either performed very slowly, or are altogether retarded; but he believes with Dr

Latham, that the excessive appetite, so frequently observed in diabetes, is a direct proof of the soundness of the functions of the stomach, although they are inordinately excited to supply the general wants of the system.

The supposition that the remarkable change in the composition of the urine takes place in the blood, appears to Dr Good to have arisen from the difficulty of imagining how the kidneys, the natural function of which is to secrete an alkali and an animal acid, should have their action so completely perverted as to secrete saccharine matter; but he states, that under particular circumstances, many organs exhibit a disposition to throw out sugar, both in health and in disease, whatever may be their proper secretion; and this circumstance occurs under the use of an animal, as well as of a vegetable diet. Thus human milk is peculiarly sweet; saliva and pus sometimes exhibit the property of sweetness, and the sweat in some fevers smells of oxalic acid.

It is difficult to form any pathological opinions from the discordant facts which have been recorded respecting this disease, having had no opportunity of investigating the matter with the advantage of a full knowledge of what had been already done by others. Guarding myself, however, against the effects of the special pleading of many writers on this subject, I cannot help coming to the conclusion, that the truth lies between the two extremes,—that pathologists have been too anxious to attribute the disease to one particular organ,—and that those who object to the view, that the kidneys are the seat of the disease, have probably expected to find some very uncommon disorganization or vascular turgescence. I am inclined to believe, that diabetes is a functional affection of the kidneys, produced by a combination of circumstances which rarely exist, otherwise the disease would be of far more frequent occurrence; and that we may look for that combination to the functions of the stomach, and other organs connected with digestion, and also to those of the lungs: and if this be admitted, there can be no difficulty in perceiving that the constitution of the blood must suffer some alteration, and that the functions of the nervous system must likewise be considerably embarrassed.

Treatment of Diabetes.—The different views entertained by medical men concerning the pathology of the disease, have led to various and very opposite modes of treatment. Willis, with the view of giving firmness and coagulability to the blood, and of invigorating the system, recommended a cooling diet, the albumen of eggs, tragacanth and gum arabic, to which he added rhubarb, cinnamon, lime-water, cordials, and opiates if required.

Sydenham carried the invigorating plan still further; he prescribed animal food of easy digestion, with an allowance of wine, and abstinence from vegetable substances.

Frank has great faith in the application of a blister to the sacrum, and the internal exhibition of assafœtida, valerian, &c.

Rollo, with the expectation of preventing the formation of sugar, and favouring that of the animal salts, enforces a total abstinence from vegetable diet, a very liberal allowance of animal food, and the use of hepatized ammonia, together with occasional narcotics; and under the idea that the stomach alone is at fault, he recommends an occasional emetic.

Dr Latham, with the exception of the use of emetics, to which he objects, subscribes to the treatment recommended by Rollo, although he entertains different pathological opinions. He substitutes phosphoric acid for the ammonia, with a view of supplying the deficiency of the animal salts, particularly the earthy phosphates.

Those who believe the kidneys to be irritated, if not inflamed, recommend general and local bleeding; and to the late Dr Watt of Glasgow, belongs the merit of reviving the practice, which had altogether fallen into disuse. He trusted almost exclusively to bleeding, and it would appear with considerable success. Dr Satterley has since followed this plan with even greater success than Dr Watt, and an account of his cases is to be found in the 5th vol. of the Medical Transactions. The subject of Dr Satterley's first case, was a man 32 years of age, previously debilitated by long-continued ill health. He was admitted into Middlesex Hospital on the 18th of February 1809, labouring under well-marked symptoms of diabetes, with a small, quick, and hard pulse, and excessive thirst. On the 19th, 14 oz. of blood were taken from him; he was order-

ed to have animal food, and a moderate allowance of liquids. On the 20th, 18 oz. more were abstracted; 20 oz. on the 23d, 29 oz. on the 25th, and 18 oz. each day on the 28th, the 3d and 11th March, making an amount of 126 oz. in the course of 20 days.

Along with this active treatment were conjoined restriction to animal food for diet, lime-water and alum-whey for drink, occasional purgatives, and very frequently, during the whole course of the disease, one grain of calomel, and a dose of Dover's powder at bed-time.

The diminution effected by the bleedings on the quantity of urine passed in 24 hours, is as follows;—after the first bleeding, it was reduced from 16 quarts to 11; the second, to 6;—the fourth, to between 5 and 7;—the fifth, to between 5 and 6;—after the sixth, to less than 5; and after the seventh, to about 3, sometimes 2 quarts.

The excessive thirst gradually left him, and his health and strength improved. He remained, however, in the Hospital for some time, in consequence of an attack of pneumonic disease, for which he required to be bled once or twice; but was ultimately discharged cured, and he had no return of the diabetes several years afterwards.

Other instances are recorded by Dr Satterley, in which the same plan was pursued with the like success; but some practitioners who entertain similar opinions concerning the nature and seat of the disease, endeavour to allay the local and general irritation by means of the frequent exhibition of narcotic medicines, such as opium, without having recourse to venesection.

The following is a summary of the practical conclusions at which Dr Mason Good arrives. Diabetes attacks different ages, constitutions, and habits, consequently it requires different modes of treatment. It is situated in the kidneys, with the state of which other organs sympathize. Animal food diminishes the tendency to saccharine secretion. Opium, in some instances, allays the irritation, and at length subdues it; but, in other cases, a free use of the lancet effects these ends more speedily. Colchicum has sometimes proved of more advantage than opium. Free depletion cannot be had recourse

to in all cases, as the disease often attacks the old, and those who have been previously debilitated; it is only admissible in cases where the constitution and digestive organs are unimpaired. Tonics and astringents, together with the mineral acids, which allay the distressing thirst, are often found serviceable, as are lime-water, alum-whey, and mineral waters.

I have only to add, that from the effects of acetate of lead in restraining active hæmorrhage, and other discharges, it may be found useful in diabetes, and is therefore worthy of trial. It was beneficial in the three cases to which I have alluded. The last accounts received from one of the patients, stated that he had been quite well for several months.

CHAP. VI.

SYPHILIS.

Much learned controversy has taken place respecting the origin of syphilis, but, after all, it is more interesting to naturalists and historians than to practical men. As my object is to offer the result of my labours to the profession in as small a space as possible, the history of the origin of this disease is inadmissible with my plan, particularly as many points of immense practical importance have been abridged, at the risk of producing obscurity which more ample illustration would prevent.

Syphilis appears under various forms, and is supposed to be produced by a peculiar virus applied to the parts of generation during impure connection. It occurs generally from the third to the seventh day after the application of the syphilitic matter. Some allege that it may take place later. The symptoms produced by the syphilitic virus have been divided into local and constitutional, and also into primary and secondary; I shall restrict the term constitutional to the febrile symptoms, which are sometimes produced when the local inflammation is intense and deep-seated, and shall apply that of secondary to all other constitutional effects, such as sore throat, cutaneous eruption, nodes, &c.

Local Symptoms of Syphilis.—When a sore is situated on the parts of generation, the fruit of impure connection, it is termed

a chancre, and may be on the glans, the prepuce, at the angle formed by the junction of the two former, at the frænum, at the orifice of the urethra, or on the body of the penis. In the female, chancres are generally situated about the labia, nymphæ, clitoris, and meatus urinarius.

The first appearance of a chancre is generally announced by some degree of itching, and upon examination, something like a pimple is observed, having an inflamed base, which feels hard to the touch; it soon shews an elevated point, from a small opening in which a limpid fluid is discharged, and from which ulceration extends more or less rapidly. Some ulcers are superficial, with hardened bases; others are raised and spongy; while some extend very deep, and are surrounded by hard, ragged edges. Ulcers on the prepuce are generally raised, and are larger than those situated on the glans, which are more frequently excavated than those on the prepuce. Chancres also originate from cracks or fissures, which so frequently take place on the prepuce, at which parts ulceration subsequently happens; or a pimple or vesicle is formed, from the apex of which the ulceration extends. There is another appearance frequently observed, viz. a large excoriation resembling the sores which take place behind the ears of children, and which affects not only the glans, but the lining membrane of the prepuce, and produces considerable inflammation, profuse discharge, and often swelling of the prepuce itself, preventing its retraction, and thus forming the state called *Phymosis.*

The degree of inflammation which accompanies these varieties of chancre, differs very much, sometimes being very slight; at others, so severe and extensive as to terminate in sloughing of considerable portions of the penis. This, there is every reason to believe, depends more upon the state of the constitution of the patient than upon the virulence of the matter applied. The degree of pain also varies, sometimes being exceedingly severe, at others scarcely complained of, and seems to depend more upon the depth and activity of the inflammation, than upon the extent of surface involved, or the swelling of the part.

In certain states of the constitution, an eruption of vesicles

appears on various parts of the body, and not uncommonly on the penis, particularly at the prepuce, and has therefore been called *herpes præputialis ;* and I agree with Bateman and others, that this affection sometimes bears such a close resemblance to chancre, as to be liable to be mistaken for it ; and Mr Plumbe states, (at page 310,) that the mistake "is by no means an occurrence to be apprehended, *where much professional knowledge exists* on the part of the surgeon or physician ;" —and further, that "at the present day *no man who knows what he ought to know of the science could possibly commit such a blunder ;*" yet it is my duty to confess that I fear I have often committed such a blunder, and am inclined to believe that there are few men in practice who have not done the same. Sores on the labia of children produced by acrid discharge are frequently seen, which closely resemble the description of the true Hunterian chancre, and I have seen the same appearances in the mucous membrane of the bowels. From observation, I am inclined to believe, that for one instance of the true Hunterian chancre, other sores are met with fifty times.

The glands in the groin frequently inflame and suppurate during the existence of ulcers on the external parts, but it is comparatively rare that this occurs on both sides. It does not appear that buboes take place in an average of cases more frequently than once in twenty. On some occasions they suppurate quickly, on others very slowly, and sometimes attain a considerable size, and continue indurated for many months before suppuration takes place, if it take place at all.

Secondary Symptoms of Syphilis.—The most frequent of these is an ulcerated state of the fauces, pharynx, and Schneiderian membrane. The disease, in bad constitutions, and under improper treatment, may destroy considerable portions of the soft palate, uvula, and tonsils ; the ulceration sometimes extends to the epiglottis, and even to the larynx, so as to destroy its cartilages, and in process of time into the nose, affecting and destroying its bones.

Various eruptions on the skin also occur, assuming the form of papulæ, pustulæ, squamæ ; and in fact there is scarcely a form of disease noticed in Willan's Orders or Species, which we do not occasionally see ranked among the secondary symp-

toms of syphilis. It is said that syphilitic eruptions present a copper-coloured appearance, and a diagnosis is too often drawn from this circumstance.

Inflammation of the periosteum often occurs, particularly on the tibia, forming nodes, and the bones themselves sometimes become affected, more particularly those of the nose and head, melancholy examples of which are to be seen in every Museum.

Inflammation of the iris is alleged to take place during the course of syphilitic affections, produced by the specific effects of the virus ;—the fact is undisputed, but the conclusion as to the cause is more than doubtful.

Secondary symptoms may occur shortly after the healing of a primary sore ; it is alleged they occasionally do not take place till after a considerable lapse of years, although the patient in the interval may enjoy perfect health.

Treatment of the Primary Symptoms of Syphilis.—The treatment of primary sores should be conducted upon the following principles. We should be guided, not by any general theory, but by the appearance of the sore itself, and the state of the patient's constitution. It should be recollected, however, that the subjects of these affections are generally young, thoughtless, and dissipated, who have contracted the disease after a course of hard living, and were, at the time of infection, in a state of high excitement from the use of stimulants, having also perhaps the stomach and bowels in very bad condition, contaminating all the secretions of the body. If there be much inflammation, pain, and swelling, or should the ulceration shew a tendency either to spread rapidly or to assume a bad character, a vein must be opened, and a sufficient quantity of blood abstracted; and I may state shortly, that I have often been surprised and gratified at witnessing the immediate benefit of this treatment. I have seen large quantities of blood (30 or 40 oz.) taken on such occasions, and can safely say, without once observing any bad effects. In the circumstances which call for venæsection, no external application should be made to the part, except warm anodyne fomentations, or perhaps what will be found still more beneficial, the vapour of hot water.

Antimony is often of considerable service as a contra-stimulant, either as an auxiliary to the bleeding, or in cases where the circumstances do not exactly call for the lancet, or when we are afraid to use it.

Laxative medicines are to be occasionally exhibited; the patient's diet should be restricted to vegetable substances; and confinement to bed for at least a few days is highly necessary, particularly in the severe cases now under consideration.

After the inflammation has been reduced, and in cases which are not attended by any considerable action, but in which the sores are very irritable, the careful application of a strong solution of the nitrate of silver (20 grs. to the oz.) is often serviceable. In cases which are neither attended by excessive inflammation nor irritation, the best application is a small piece of lint, not larger than the size of the sore itself; and the part is to be exposed five or six times a-day to the vapour of hot water, or it may be kept wet with any bland liquid. Great cleanliness is necessary in all cases, but as the sore is often irritated, and additional inflammation excited by drawing back the prepuce, the fluid should be thrown up between the prepuce and glans by means of a small syringe. On many occasions no further means will be necessary, if we are consulted early; but from various motives, patients are often induced to conceal their complaints for a considerable time, and when we see the sores, they are found too far advanced for simple remedies. In such circumstances, various washes have been used, as solutions of the acetate of lead, sulphates of zinc, copper, and alumina, and the nitrate of silver. The oxymuriate of mercury, as well as the muriate, mixed in lime water, are also frequently used as external applications; the one is familiarly known by the term "yellow," the other "black wash." The latter is made by throwing a dram of the sub-muriate into eight ounces of recently prepared lime water; a precipitation takes place of a dark colour. This preparation is more frequently used than the yellow wash, and I believe is generally admitted to be more efficacious than any other single application. The preparation I have used for some years is made in the following manner: an ounce of

calomel is well and gradually rubbed up with one pound of lime water. After standing for twenty-four hours, the fluid part is poured off, leaving the precipitate sufficiently moist to be applied with a hair-pencil to the affected part, without the intervention of lint or linen. In making choice of any particular lotion, it is found to be a good rule to change from one to another, should the sore shew no appearance of amendment in the course of three or four days.

Various ointments have been also often used,—of these, the common mercurial and the red precipitate stand in the highest estimation; but it has been generally found that greasy applications do not answer well. When astringent or stimulating preparations are required, their strength must be regulated by the effects they produce on the part; slight temporary pain should be occasioned when we wish to excite a little increased action; when, however, the sore is in a very indolent state, a strong solution of the nitrate of silver will, upon the whole, be found to be most effectual; the solid caustic itself is often necessary, particularly when a tendency is shewn towards the formation of warts.

In treating cases of primary sores, whatever may be their external character, whether they succeed impure connexion or not, my plan has been to treat them in the manner above described in the first instance; but should there be no decided appearance of amendment in the course of ten or twelve days, then I am in the habit of prescribing a five-grain mercurial pill, morning and evening, and I have rarely had occasion to give above eighteen pills before a permanent cure was effected. It has been ascertained, however, by numerous experiments performed within the last fifteen years by different individuals in different countries, that all primary sores can be eventually healed by the simple non-mercurial plan of treatment; and although this practice cannot be called altogether new, still, when we reflect upon the immense destruction of human life and domestic happiness, created by the diabolical mercurial plan previously pursued, the effects of the exertions of every gentleman who has been instrumental in proving the safety of the non-mercurial treatment, cannot be too highly estimated. Although the services of Dr Thomson are well

known and acknowledged by many, yet I am grieved to see his name passed over in some of the popular works of the day. In the learned work of Dr Mason Good, the merit of introducing this practice is entirely referred to Mr Rose, surgeon to the Coldstream Regiment of Guards. Dr Mason Good states, (vol. iii. p. 388.) that Mr Rose "was determined to put the question to a test, and upon such a scale as might lead to something of a decisive result; he forebore in consequence, about the year 1815, to employ mercury for the cure of any case of syphilitic affection."

It is well known that Dr Thomson led the way, both by precept and example, long previous to 1815; and if I recollect right, it was in consequence of the views which Dr Thomson gave in his course of lectures on surgery, that I was induced in the year 1808 to treat more than one case of chancre without mercury, which had all the appearances of true syphilis. In one instance secondary symptoms ensued in the form of sore throat and eruption, which were also successfully and permanently cured upon the same principles; and it so happens, that I have still an opportunity, from frequent intercourse with the individual, to know, that he has never suffered from the plan pursued, and that he has a large family of healthy children. I also recollect, when I first took charge of the sick in the Ordnance Hospital at Leith Fort, in the beginning of the year 1811, having been strongly advised by Dr Thomson not to give mercury. Dr Thomson's opinions were well known both at home and abroad before the year 1815, at which period I believe there was not a military or naval surgeon in the service of Great Britain who was not aware of them; therefore it must be acknowledged that Dr Thomson has not received that merit which is justly his due, as will be seen by the following extract copied from the work above-mentioned:—"The experimental course laid down by Mr Rose was soon adopted by others, and, on various occasions, carried into establishments which afforded ample space for a satisfactory examination. It was tried in other battalions of the Guards, as well in France as at home; was introduced into the York Hospital at Chelsea, and various other establishments, as at Dover, Chatham, and EDINBURGH." (P. 388.)

These observations are not dictated by feelings of personal friendship, but are made from a strict sense of justice towards Dr Thomson.

It cannot now be denied, that all syphilitic sores may heal without having recourse to mercury; and on the other hand it is known, that by a judicious use of various preparations of that mineral, the same event may take place. But an interesting question immediately suggests itself,—By which plan will a cure be most speedily and effectually obtained? I have found, that according to either plan, permanent and effectual cures are produced, but more speedily under the judicious use of mercury, along with blood-letting, and the other means, local and constitutional, which have been already noticed. But there are constitutions that cannot bear the action of mercury, and upon which it produces poisonous effects.

Although I should be entitled to insist on the force of these observations, drawn from my own practice, yet they are rendered still more worthy of confidence by the united testimony of a number of gentlemen, who have directed their attention to the settling of this important question. Dr Hill, who has written an excellent paper on the simple treatment of syphilis, in the 18th vol. of the Edinburgh Medical and Surgical Journal, candidly states at page 590, that secondary symptoms occurred in a greater proportion under this treatment, than after that by mercury; yet he assures us, that these affections are of a milder and more tractable nature. In the practice of Staff-Surgeon Murray, Mr Evans of the 57th regiment, and Mr Brown of the staff-corps of cavalry, the proportion of secondary symptoms to the whole number of cases has been about a tenth. Mr Guthrie, Deputy Inspector of Military Hospitals, now a surgeon in extensive practice in London, in a paper published in the 8th vol. of the Medico-Chirurgical Transactions of London, makes the following observations at page 508: "The fact I have stated, as to the non-occurrence of secondary symptoms in regimental hospitals, where all doubtful cases were treated by mercury, is so positive, that I am certain no regimental surgeon of ability will be found to contradict it. That they did sometimes occur is true, but it was only when the troops were moving, and

under irregular management, that they were numerous, and then only in the general hospitals, where all the stragglers, and all the bad and protracted cases, are collected. In the half year ending the 24th June, nearly 1400 cases of primary symptoms were treated in the army in France by mercury, and in this period only 14 cases of secondary symptoms occurred." And in another place he states, " In six regiments in one district in England, 521 cases were treated in fifteen months by mercury, and ten cases of secondary symptoms appeared; so that the true average proportion is 1 in 75."

Notwithstanding these statements, it is evident there are no data on which any calculation can safely be made respecting the proportion of secondary symptoms succeeding to either plan of treatment. Some practitioners call every eruption on the skin, and slight relaxation of the throat, and rheumatic pains,—secondary symptoms. Others place only the worst description of such cases under that denomination; which circumstances I have often witnessed, both on the part of mercurialists and anti-mercurialists. A great majority of the cases of eruptions and sore throats, occurring under both symptoms of treatment, are generally to be attributed to affections of the stomach and bowels, produced by the remedies employed in peculiar constitutions; and that they should more frequently occur under the usual plan adopted by the anti-mercurialists, is not surprising. No means are more likely to weaken the functions of the stomach and bowels, and indeed the actions of the whole system, than long-continued confinement to bed, the use of slops, and drenching patients with two or three pounds of the decoction of sarsaparilla daily. Such treatment will enable us to account very well for the longer period required to heal sores upon the anti-mercurial plan than the other. On many occasions, chancres of long standing have healed immediately, after patients have been allowed solid food, and a little wine or porter, sometimes with, sometimes without, a few blue pills.

In former days, when large quantities of mercury were given, and persisted in for a long period of time, secondary symptoms were far more frequent than at present; and in calculating the benefit derived from the labours of the non-mer-

curialists, they are fairly entitled to the credit of the remarkable change which has taken place, as well as of shewing that secondary symptoms do not occur nearly so often as was imagined; that they are rarely dangerous, and may in many instances be cured, perhaps not so speedily, but quite as effectually, without as with mercury.

A curious fact may be mentioned respecting the black wash, which applies equally to all other mercurial applications. Some years ago, when I was carrying on investigations respecting the comparative advantages of the different modes of treating syphilis, I was surprised to find, on visiting the Hospital in the Castle of Edinburgh, that the primary sores were healed in a much shorter space of time than in the Royal Ordnance Hospital at Leith Fort, although I had two advantages which they did not enjoy, viz. a better and a less crowded hospital, and men, generally speaking, of stronger constitution. Upon expressing my surprise at this circumstance, I was asked by one of the medical officers if I used the black wash, for that they had found it the most effectual application. My reply was, that I had not considered it fair to use any mercurial preparation whatever, when endeavouring to ascertain the effects of the non-mercurial plan of treatment; but I resolved after that to try it. Accordingly, the black wash was prepared, and the first subjects to whom it was applied were two men, who had been upwards of thirty days in hospital, without any amendment of the sores. On the seventh day, the healing process was observed in the sores in both cases; but one of the men asked me to allow him porridge instead of his bread, which he could "not eat on account of the state of his teeth." Next day he made the same request, and begged me to look at his mouth: the state of the gums, and the fetor of the breath, announced the effects of mercury upon the system, which attracted my attention, and induced me to examine the mouth of the other man, who was in another ward; he was found to be in a similar state, but slighter in degree. On the next public day, I returned to the Castle, and announced the circumstance before Dr Thomson, and a considerable number of other gentlemen, who said it must have been accidental, and that it had never been

observed in their Hospital. It was readily granted on my part that it might be accidental, but that it certainly deserved attention, having occurred in two consecutive cases. Salivation never having been observed in the Castle was no argument, because I had no doubt the event had never been looked for, and perhaps would never have been observed by me, had not one of the patients asked for a change of diet. We soon went up stairs into the wards; the gums of some patients were examined, who were using the black wash, and two or three of them were observed to be under the influence of mercury. It was then calculated, that the hundred-thousandth part of a grain of mercury could not have been received into the system by means of the application of the black wash to such a small extent of surface. My answer to which was, that the calculation was merely a guess, and that it was immaterial to the point at issue, how small or how large a quantity would affect the system.

At that time I was attending a young lady who had a small sore, of the nature of lupus, upon the nose, to which the black wash was applied, out of the same bottle from which the two men had been supplied. On the ninth day, she complained of her mouth being very sore, and of having a copperish taste; upon examination, the gums were found to be swollen, spongy, and inflamed, the breath having the mercurial odour. Since that period I have applied the black wash to many cases of all descriptions of ulcers, and in two-thirds of these some degree of soreness in the mouth has been produced, with considerable mercurial fetor, in the space of from the fifth to the tenth day. In all these cases, the sores healed more rapidly than in the remaining third; and a circumstance, worthy of being mentioned, has been observed,—that from the moment the sores began to cicatrize, the effects of the mercury upon the mouth declined, although the application of the black wash was continued; and in some, for the sake of experiment, it was persevered in for fourteen days, notwithstanding which the mercurial effects disappeared.

Treatment of Buboes.—When inflammation of the glands in the groin is first observed, the patient should be advised to use no exercise; and, if possible, confine himself to bed,

more particularly if he shew any of the appearances of a bad constitution, or even temporary bad habit of body. If there be much redness and pain, leeches should be applied, succeeded by a poultice, or warm fomentations; and sure am I, that should suppuration eventually follow, it will be much less extensive than if leeches had not been used. The matter, in the event of suppuration, should be let out as soon as possible, by means of a moderately sized puncture with a lancet, as the best means of diminishing the suffering of the patient, preventing bad ulcers, and the formation of extensive sinuses. A plan has been proposed of opening buboes by means of caustic; but experience obliges me to condemn such roundabout surgical practice. Should the parts not shew a disposition to heal, much benefit is often derived from pressure, and also from the application of the solution of the sulphate of zinc, or nitrate of silver; indeed the edges of the incision sometimes require to be touched with the latter in substance. A generous diet is sometimes necessary, and the occasional use of wine is frequently found advantageous.

Treatment of Secondary Symptoms of Syphilis.

1. *Sore Throat.*—This form of secondary symptoms is to be treated upon general principles. From the effects produced in a great number of cases, I cannot speak too highly of the external application of leeches and blisters, when the inflammation and swelling in the throat are considerable, and when the ulcers are active and irritable; but in other circumstances, a solution of the nitrate of silver, in the proportion of twenty or thirty grains to the ounce of distilled water, is to be applied by means of a hair pencil to each ulcer. In this case the functions of the stomach should be carefully attended to by regulation of diet, and the use of gentle laxatives, combined either with the sulphate of iron, or sulphate of quinine. I have hitherto seen no case which has not speedily yielded under this treatment, when the sore was within reach.

2. *Eruptions.*—It has already been mentioned, that almost every form of known eruptions has been classed among the secondary symptoms of syphilis. They are to be treated upon general principles, so fully detailed in a former part of this

volume; but in intractable cases, marked benefit will be found to follow the use of the alcoholic solution of corrosive sublimate.

3. *Nodes.*—In incipient cases in which the pain is severe, the frequent application of leeches to the part affected will be of great service, followed by that of blisters; and here again I have to observe, that decided advantages will result in a majority of cases, from the use of the corrosive sublimate, aided by the vapour-bath, opiates, and perfect rest. When the bones come to be extensively diseased or carious, surgical treatment must be had recourse to.

The following deductions have been forced upon my mind, not only from my own personal observation, but also from a careful consideration of all the facts laid before the profession respecting the treatment of syphilis.

1. That mercury is as certain a poison as arsenic, only it is not so quick in its operations upon the system.

2. That, like many other poisons, it is found useful in the cure and alleviation of many diseased states of the constitution, when employed with caution, and within certain limits, which can never be defined to suit all constitutions.

3. That it will cure syphilitic diseases, when used judiciously, not by any specific effects which it has been long erroneously supposed to possess in these diseases, but from its having the power of altering or modifying diseased actions, both local and general, improving the state of the secretions, and thereby disposing sores to heal; but when carried beyond a certain point, which can never be defined, mercury produces a disease of its own, always more difficult to cure than the primary one for which it was employed.

4. That all kinds of syphilitic ulcers on the parts of generation, including the true Hunterian chancre, may be cured without the intervention of mercurial preparations, upon the simple plan of treatment above described.

5. That secondary symptoms do not succeed the non-mercurial plan of treatment in nearly such a great proportion as was apprehended, and as is still asserted by some of the mercurialists; and that when they do occur, they are generally mild, unattended by danger, (which cannot be said of those pro-

duced by over-doses of mercury,) and can be cured in a great number of cases without the use of mercury.

6. It would appear to be established by all the medical evidence which I have had an opportunity of examining, that all the primary forms of syphilis are more speedily cured by a judicious use of mercury, than by the non-mercurial plan of treatment.

It is with much pleasure that I can refer my readers, for most valuable information, to an able work on Syphilis, by J. M. Titley, M.D. of London.

CHAP. VII.

DISEASES OF THE LABIA, AND EXTERNAL PARTS, IN THE FEMALE.

Phlegmon.

The labia are liable to inflammation and its consequences, not only from their situation, but likewise from acrid discharges, &c. Ulceration and phlegmon are two of these effects, but the remarks already made when treating of syphilis, are equally applicable to all ulcers on the labia, and render it unnecessary to say more upon the subject; I shall therefore proceed to treat of phlegmon, which may occur at any period of life; sometimes as the consequence of external injury; at others, it occurs spontaneously, as phlegmon does in other parts of the body.

Symptoms of Phlegmon.—The disease is known by the existence of heat, pain, swelling, and throbbing, and more or less general fever. From the looseness of texture of the part, the progress of the disease to suppuration is generally rapid, in which case the pain is more severe; but in other instances, the disease comes on more gradually, the part continues long hard, and the pain is sub-acute. The terminations are the same as in phlegmonous inflammation in other parts of the body, suppuration being, however, the most frequent; owing, no doubt, to a natural feeling of delicacy, which prevents females from making such complaints known till the disease is far advanced.

Treatment of Phlegmon.—There can be no doubt respecting the advantages to be derived from the application of leeches

early in the disease. I object to cold lotions, because I doubt much if they ever prevent suppuration, although they may certainly retard the disease; warm fomentations and poultices will be found far more efficacious. From the depending position of the parts, and the increase of pain produced by motion, the patient should be confined to bed. The bowels are to be kept open, and the pain moderated by large opiates. Suppuration sometimes takes place in the course of the second day, and as soon as matter is discovered, it should be evacuated by puncture; but there is no necessity for making a large incision, provided the abscess be opened in a depending part. From observing, that when left to itself, the abscess opens on the inner surface of the labia, I generally make the puncture in that situation. It is not good practice to introduce a tent, but pressure should be applied by means of sufficient compresses, and a T bandage.

Mortification ought to be a very rare termination; but I have seen two cases where sloughing took place, with great loss of substance, in consequence of neglect and bad management.

Peculiar Affection of the Pudendum, occurring in Young Subjects.

In the year 1815, the attention of the profession was directed to the history of a very fatal affection of the pudendum of children, by Mr Kinder Wood, surgeon in Oldham, now in Manchester. Of this affection he had seen twelve cases before he wrote his paper in the 7th vol. of the Medico-Chirurgical Transactions, London. The patients were from one to six years of age. Two only recovered. The complaint commences, according to Mr Wood, "with chilliness, succeeded by heat; slight pain in the head; dulness; nausea; loss of appetite, and thirst; the tongue has a clay-coloured deposit; the bowels are torpid; and the patient is languid, inert, and listless. These symptoms precede the affection of the pudendum about three days. When the genital organs are examined, one or both labia are found inflamed and enlarged; the inflammation is of a dark tint, and soon extends internally over the clitoris, nymphæ, and hymen, and a thin secretion,

which at this period may be observed coming from these parts, renders it not improbable that the lower part of the vagina may be affected." In a dissection at which I was present with Mr Cheyne and Dr Combe of Leith, and which was also attended by Professor Bene and his son from Hungary, when on a tour in this country, the inflammation, which terminated in mortification, had extended high up in the vagina.

Ulcerations soon take place, generally of a bad character, having a dirty yellow appearance. In Mr Wood's cases, the discharge was peculiarly offensive, copious, irritating the adjacent parts, and contributing to extend the disease along the peritoneum to the anus, and to the inner part of the top of the thigh, contiguous to the labia. He has also seen the inflammation spread over the mons veneris, and succeeded by deep ulcerations, progressively extending as long as life continued. "The pulse (says Mr Wood,) is quick and irritable after the inflammation commences, and as the ulceration extends, the face becomes of a peculiar pallid hue, the skin having a very singular whiteness, which I have never seen absent after the ulcerations had formed. The stools are slimy and offensive; and in two or three cases, I have seen apthæ spread extensively around the anus, and over the peritoneum. The ulcerations in this affection are not of an equal depth or appearance, but various in this respect, as well as in the state of the bottom, which, in some places, is foul as well as deep, in others superficial, and sprinkled with small red granulations." Mr Wood further states, that in his cases, the pain on motion was excessive, and that retention of urine, with its usual concomitants, formed an important train of symptoms. The course of the disease does not appear to occupy any regular period, but "from the time that the ulcerative action is completely established, the enlarged labia diminish, and the redness disappears, the ulcer successively extending over parts which had been inflamed. The character of the disease at this time is that of a deep, foul, and spreading ulcer, upon parts weakened by a peculiar inflammation, and a constitution injured and weakened by previous febrile symptoms. The external organs of generation are now progressively destroyed; the peculiar pallor of the countenance increases; the

pulse becomes quick and weak; the appetite fails; the bowels become loose; the skin of the thighs hangs loose and flabby as in marasmus; the discharge from the parts increases, and becomes more and more offensive, till the patient is worn out and expires." But in all the cases but one which I have seen, the progress was different; the ulcerations were not extensive, and the external swelling and dark-red colour continued to the last, and in two cases even after death.

The duration of this curious affection is various:—"In one case, the patient got better in twenty-three days, in another in seventeen days; but it is not possible to say what may be the duration of a fatal disease, this depending on many circumstances of violence, constitution, &c. When the ulceration is deep and extensive, I have never seen the patient recover." Mr Wood presumes that this affection bears a much stronger similarity to infantile erysipelas than to any other disease.

The first case of this affection that fell under my observation, occurred several years ago in my Dispensary practice. The patient, a girl of six years of age, when recovering from measles, during the progress of which there had been great gastro-intestinal irritation and diarrhœa, was seized with the disease of the pudendum, and died in the course of eight days. Every effort was made to obtain permission to examine the body, without success, but I saw sufficient to convince me that the child died, not so much from the effects of the external disease, as from inflammation, and perhaps ulceration, of the mucous membrane of the bowels. Sometime afterwards, I was asked by Dr Moffit of the 7th Hussars to see a child labouring under the disease at Piershill Barracks; she was also attacked with it immediately after the recession of the eruption in measles, which had been mild, but attended with diarrhœa. The external inflammation, pain, and swelling of the pudendum, were fully as great as in the former case, and bore such a strong resemblance in its external characters, that any one would have readily recognized the affection from a drawing in my port-folio. This child recovered under the use of poultices and fomentations, and the exhibition of gentle laxatives. Since then, several fatal cases have occurred in Edinburgh, and the appearances on dissection were such as to

confirm the opinion I had previously entertained,—the mucous membrane of the bowels displaying extensive vascularity and ulceration, particularly in the ileum. In one of the cases, the ulcerations were numerous and extensive; and in the other, the mucous membrane was found thickened and spongy in many places, and in the usual progress towards ulceration, which would certainly have taken place had the child lived a few days longer.

It would appear that Dr Ferriar of Manchester was familiar with this affection, for he states, in his excellent work, entitled "Medical Histories and Reflections," that he had "met with several instances of putrid fevers in young girls, accompanied with broad maculæ on the body and limbs, *and a gangrenous state of the labia pudendi*. The parts were greatly tumefied and extremely painful. It was a very fatal complaint." (P. 169.)

Treatment.—Mr Wood remarks, that the first part of the treatment is to move the sluggish bowels with calomel and rhubarb; the affected part should be frequently washed with the liquor plumbi acetatis dilutus slightly warmed, and poultices made of the same liquor applied. As soon as the ulcerative action is commenced, he considers it necessary to have recourse to bark in decoction, to which he commonly added confect. aromat. with tinct. calumb. and small doses of tinctura opii, together with a moderate allowance of red wine. When the tumefaction and redness were diminished, and the ulceration stationary, he applied the ungt. oxyd. plumb. alb. and found it very useful. When the bowels became loose, he found the elect. mimos. catechu of excellent service, and he gave the bark in substance when it could be borne.

According to the views which I have been led to form, besides the local treatment recommended above, such means ought to be taken as will cure inflammation, and ulceration of the mucous membrane of the bowels, which have been so fully described in the first volume.

CHAP. VIII.

INFLAMMATION OF THE TESTES.

INFLAMMATION of these organs is sometimes produced by external injury, or it occurs spontaneously in the course of gonorrhœa, particularly the virulent form, and also during the cure of stricture in the urethra by the bougie. It was formerly called hernia humoralis, from mistaken notions, by the humoural pathologists. The inflammation may either attack the part called epididymis, and spread from thence to the body of the testicle, or the latter may be originally and solely affected. When the body of the testicle is inflamed, the pain is very severe, extending along the cord, which, in some cases, is also involved in the disease; and occasionally great uneasiness is felt in the lumbar region. The pain is increased by pressure, motion, and also when the body is in the erect position; the swelling is sometimes very great, and the scrotum frequently reddened and tender. I have seen both organs affected simultaneously; but this is rare, the inflammation generally attacking one only at a time. When the epididymis is alone affected, the pain is seldom much complained of, and the constitutional symptoms are slight; whereas in the other, there are sometimes high febrile symptoms, and very frequently nausea, with a disposition to faint.

Treatment of Inflammation of the Testes.—The horizontal posture in bed must be insisted on, and the part is to be properly supported; if the disease be produced by external injury, and be not severe, these precautions, together with the employment of laxatives, a strictly antiphlogistic regimen, and the application of warm fomentations, will suffice. In more

severe cases, the internal exhibition of antimony as a contra-stimulant is necessary, with perhaps local bleeding, which is much better effected by opening one of the superficial veins on the surface of the scrotum with a lancet, than by the application of leeches, which are tedious, often troublesome, and on some occasions exceedingly inconvenient, particularly when secrecy is required. When a vein in the scrotum is opened, the patient should be standing, as the blood will not flow in the recumbent posture; so that when we wish to stop the discharge, we have nothing to do but to make him lie down. In very severe cases, however, where the swelling is great, the pain severe, and the febrile symptoms high, one general bleeding will be necessary. This proves beneficial by unloading the system, and particularly the part, of blood, and by giving an effectual, perhaps a permanent check to the diseased action. I find it very serviceable in the decline of the acute stage of the disease, and particularly should there be pain in the course of the spermatic cord, to apply a small blister on the lower part of the abdomen in the course of the vessels. After the inflammation has subsided, and if any hardness remain, the use of frictions with mercurial ointment, containing a portion of camphor, will be serviceable, and a suspensory bandage must be worn for some time.

When the inflammation of the testes depends upon inflammation or irritation in the urethra, the same plan of treatment is to be had recourse to, in addition to such means as may be necessary for the removal of the latter affection. Should it seem to be produced by the use of the bougie, it must be abandoned for some time, and when recourse is again had to it, a smaller-sized instrument may be used, with additional gentleness and caution. In the treatment of this disease, we should feel anxious, not only to mitigate the patient's present sufferings, but to employ such means as will prevent any subsequent induration. I scarcely ever met with an instance of scirrhus of the testicle, which has not been attributed by the patient to some previous injury.

CHAP. IX.

DISEASES OF THE UTERUS CONNECTED WITH INFLAMMATORY ACTION.

In this chapter I shall treat of the following diseases:—1. Inflammation of the Uterus after delivery.—2. Inflammation of the Os and Cervix Uteri in the ordinary state of the system.—3. Vascular Sarcoma, Scirrhus, and Cancer of the Uterus.

Inflammation of the Uterus after delivery.

This disease has been termed metritis, which implies the existence of inflammation of the *substance* of the uterus. Comparatively speaking, it is rare, and we meet perhaps with more than fifty cases of inflammation of the peritoneal covering of the uterus, and its appendages, for one of this disease. I have met with it only in two instances within the last twenty years, —one of which was owing, as far as could be ascertained, to long-continued injurious pressure which the uterus sustained in a case of difficult labour, occasioned by the diminished capacity of the pelvis, and the large size of the head of the child; —the other was a very complicated case, occasioned by rough treatment during labour, and in the extraction of the placenta; the bladder in this case was allowed to remain distended from Sunday till the following Friday. Several relapses took place, attended with pain in the region of the uterus, enlargement of that organ, ascertained by internal, as well as external examination. After many months of suffering and hectic fever, it was suspected that the uterus contained a fluid, and the channel through the os uteri was obliterated. Upon the probability of this opinion, a small steel bougie was cautiously introduced through the os uteri, when a discharge of about two ounces of fetid pus took place, with a large quantity of

air. From this time the bad symptoms disappeared, the recovery was rapid, and menstruation took place in a few weeks subsequent to the operation.

In a very severe puerperal epidemic, which prevailed at Vienna in the months of July and August 1819, it is stated that the substance of the uterus was always affected; but upon examining the dissection reports, I can find only two such instances out of fifty-six. In the epidemic which occurred in the Maternité of Paris in the year 1829, the uterus is represented as having been diseased in one hundred and sixty-five cases, and in twenty-nine instances was alone affected.

Not being familiar with the disease myself, I must take the liberty of drawing a description from the work of Mr Burns of Glasgow, who describes it as appearing under two forms. The first takes place within the ninth day after delivery, with all the symptoms of ephemera, with a dull heavy pain in the lower part of the belly, which is neither constant, nor much felt, unless when the patient sits up, or when considerable pressure is made with the hand; but occasionally a darting pain takes place through the uterine region. The state of the lochia, of the milk, the pulse, and bowels, are said to be various. A discharge of blood like the menstrual is said to be critical, as well as the occurrence of free perspiration, and diarrhœa. The treatment consists in exciting early and free perspiration, fomenting the belly, and opening the bowels. Few cases are said to require the use of the lancet or of blisters.

The second form is said to be more serious from the intensity of the inflammation: it commences between the second and the fifth day after delivery, but may take place at a later period. The pain in the lower part of the belly is severe, increased upon pressure, and the uterus is distinctly felt harder, and larger than usual; there is, however, no general swelling of the abdomen or tension, unless the peritoneum be affected; sometimes nausea and vomiting take place. The pulse very soon becomes frequent and somewhat hard, the tongue white and dry, and the urine scanty and high-coloured. The lochial discharge is early suppressed, and the secretion of milk is diminished or destroyed.

Like the other form, this may terminate favourably by some critical discharge, but in many cases, the result is represented to be less fortunate;—the febrile symptoms and the pain continue, the pulse becomes more frequent, rigors take place, a throbbing of the part is felt, symptoms of hectic ensue, the patient spends sleepless nights, and is drenched in perspiration.

"After some time (says Mr Burns,) matter is discharged from the vagina, or by the bladder, or rectum." "Pus is contained often in the ovaria, and tubes, and sinuses of the uterus. Mortification is an extremely rare termination. This is a fact, of which my dissections convince me, and it is farther confirmed by the opinion of Dr Clarke. Little or no serous effusion takes place into the abdomen." (Page 426.)

I strongly suspect that Mr Burns has confounded this complaint with four others,—viz. suppression of the lochia, peritonitis, disease of the mucous membrane of the bladder, and an affection of the colon and rectum. The symptoms occasioned by suppression of the lochia, peritonitis, and metritis, bear such a strong resemblance to each other as occasionally to defy all diagnostic distinctions. The pain in peritonitis is sometimes as dull as that represented in metritis. The general description which Mr Burns has given of the appearance found on dissection is very vague; but in detailing the symptoms of metritis, he states, that "matter is discharged from the vagina, or bladder, or rectum, but oftenest from the rectum." I would here take the liberty to observe, that although matter is discharged from the vagina, it may have proceeded from the uterus; but if discharged from the bladder, or rectum, these, it appears to me, would be rather round-about ways for the matter to take from the uterus, unless false passages have been made by instruments rashly used, or by ulceration. Mortification, instead of being a rare occurrence, as stated by Mr Burns, would be a very frequent termination, if the inflammation affected the muscular structure of the uterus. The existence of pus in the ovaria and tubes is very usually found in puerperal peritonitis. The assertion of the existence of pus in the sinuses of the uterus is vague, as it may be coagulable lymph, which is often discovered in veins.

The remedies which Mr Burns recommends in the second

form, are the early and free use of the lancet, mild laxatives, fomentations, embrocations, and sinapisms. The best internal remedy we can employ, he says, is saline julep, with antimonial wine and laudanum. Emollient and anodyne enemata afford relief. After suppuration has taken place, he recommends open bowels, light nourishment, fomentations, and anodynes. After the matter is discharged, removal to the country and tonic medicines are useful.

Inflammation of the Os and Cervix Uteri in the ordinary state of the System.

Experience has convinced me, that inflammation of the os and cervix uteri occurs more frequently than is generally imagined; that it is the cause of much distress to females, by producing diseased states of the menstrual discharge, and other complaints, more particularly ulceration, as well as scirrhous and cancerous affections. As the disease falls to be so often mentioned in the following pages, I shall now give a description of its symptoms, appearances, and terminations.

This disease may take place after exposure to cold, fatigue, or fright, and it is sometimes ushered in with chilliness followed by some degree of fever, with a sense of fulness, weight, heat, and pain in the proper region, and also in the back and loins—the severity of these symptoms depending upon the intensity and extent of the inflammation; in general, however, the inflammation is sub-acute, with corresponding mild symptoms. In the acute cases, the rectum appears to suffer, at least tenesmus takes place, the patient experiences increased suffering when at stool, and occasionally there is also micturition. The worst instances that have fallen under my notice, were connected with diseased states of menstruation, both as cause and effect. In most cases there is an increased discharge from the vagina, resembling the leucorrhœal; frequently it is of a sanguineous nature, and when examined, is found partly fluid and partly coagulated. When the discharge is copious, the pain in the back is generally severe.

In all serious diseases of the uterus, it is necessary to make a careful examination of the state of parts, not only by the vagina, but also by the rectum. On reaching the os uteri, in

acute cases, a considerable increase of pain will be produced by the touch, and will be very much complained of every time the finger is made to press upon the organ, which feels hot, swollen, and doughy; and I have often been aware, during such examinations, of the pulsation of minute arteries. Sometimes I have discovered one or more large vesicles which feel like minute tubercles; and also ulcerations, particularly on the posterior lip. In sub-acute cases, the patient complains of slight increase of pain upon making an examination, the uterus feels heavy, and the lips of the os uteri swollen, irregular, and even rough.

Treatment of Inflammation of the Os and Cervix Uteri.—Venæsection is occasionally necessary in stout, plethoric women. On the Continent, the application of leeches to the immediate seat of the disease is recommended, and is particularly insisted upon by French writers. Formerly I entertained strong prejudices against this practice, which a trial, urged by the recommendation of my friend Dr Farquharson, who resided for many years at Lisbon, completely removed. The leeches are put into an ivory tube, furnished with a piston, and introduced so that the extremity reaches the top of the vagina. The piston is then pushed forward. The leeches in general fasten immediately, and become filled in the course of a few minutes, when they make their escape, or are removed with the finger. The patient is to sit upon a vessel containing boiling water, to encourage the bleeding, which is readily suppressed upon lying in the horizontal posture. The bowels are to be acted upon by the mildest laxatives, assisted by injections of tepid water, care being taken that the nozzle of the pipe be not pushed against the diseased part. As soon as the bowels are in a proper state, anodynes may be used, and are found most efficacious when introduced into the rectum. The diet should be more or less antiphlogistic, according to circumstances. Rest in the horizontal posture is to be enjoined, until considerable amendment has taken place; and the warm hip-bath seems to be serviceable in all cases where there is no considerable hæmorrhage. I have seen contra-irritation, produced either by tartar-emetic ointment rubbed

upon the lower part of the belly, or by means of a blister to the sacrum, beneficial.

Individuals who have had an attack of this disease, are ever afterwards liable to a return; therefore great attention should be paid to the bowels, and to preserve the feet sufficiently warm; they should wear drawers, and never be without a napkin, or a T bandage made of flannel.

When an ulcer is discovered, it should make little difference in the treatment, further than to induce us to be perhaps a little more active, and more peremptory in insisting upon the necessity of keeping the horizontal posture. In such cases, injections, at first of warm milk and water, and afterwards of any of the usual astringents, repeated several times a-day, are necessary. In one case in which I was successful in arresting the progress of, and subsequently healing, a large ulceration on the lip of the os uteri, I had an opportunity about eight months afterwards of examining the condition of the part on dissection, the patient having eventually died of phthisis pulmonalis. There was considerable loss of substance, but the cicatrization was complete, and there was no surrounding hardness.

Vascular Sarcoma, Scirrhus, and Cancer of the Uterus.

By vascular sarcoma of the uterus, I mean an increased growth of that organ, by a deposition of organized matter similar to its natural structure, and possessing its fibrous appearance. In all the cases which I have seen, the disease seemed to advance with symptoms shewing increased action, if not inflammation itself,—such as general febrile movement; pain increased on pressure; general tenderness of the part; tumefaction of the abdomen, which has been always observed to be more and more enlarged after the subsidence of every attack. These symptoms recur at irregular periods, with intervals of one, two, or more months. The natural functions do not appear to be much disturbed, except during the inflammatory paroxysms; in general the appetite is good, but there is much thirst; digestion goes on well, at least for a considerable period, and the bowels are not more impeded than can be well accounted for by the mechanical pressure; the

stools generally have a natural appearance; and the menstrual discharge, in many, continues to flow, but sometimes in increased quantity, so as to resemble active hæmorrhage. The uterus sometimes grows to an immense size, if the disease advance slowly. I once had an interesting case of this affection under my care, in which, upon dissection, the uterus weighed above fifty pounds avoirdupois, which is perhaps the most extreme instance on record, particularly in which life was preserved so long. The tumour filled not only the abdomen, but pushed the diaphragm so high, that it encroached upon the thorax, and lay over the heart and lungs, so as to conceal the respiratory sound over the whole anterior part of the chest. So high did it reach, that the diaphragm on the right side came in contact with the first rib; the lungs were found reduced to about a third of their natural size; and although the heart was perhaps rather larger than natural, it was flattened by the pressure it had sustained. A cast of the body of this person, a preparation of the uterus, and several drawings, are in my Museum.

On cutting into an uterus affected with vascular sarcoma, there is observed not only a resemblance to the natural structure, but an absence of those white lines which characterize scirrhus; and there is nothing like ulceration. The disease has no resemblance to tubercles of the uterus, which are circumscribed, and seem like knobs projecting from its surface, or embedded in its substance. In vascular sarcoma, it is impossible to point out where the proper structure of the uterus terminates, or the diseased structure commences; the surface of the organ is generally even, and wants the hard indurated feel of scirrhus. Women affected with this disease may die at last from the effects of peritonitis, phthisis pulmonalis, or of some cerebral affection, instances of all of which I have known; and in some cases the uterus has been found, upon dissection, very much enlarged from this disease, where little, and in others no suspicion was entertained of organic disease. This, I apprehend, can scarcely happen in scirrhus or cancer.

Treatment of Vascular Sarcoma of the Uterus.—In the gravid condition of the uterus, fresh matter is deposited by its arteries, so as to increase its bulk and weight in a remarkable

manner, but is again absorbed after delivery; and from the analogy which exists between vascular sarcoma and the great increase in the substance of the uterus during gravidity, it is probable that the preparations of iodine, by exciting the action of the absorbent system, will be found successful in its treatment. The iodine may be exhibited either in the form of tincture, or combined with potash, forming the hydriodate of potash; of the former, ten drops may be given three times a-day, gradually increasing the dose to thirty,—of the ordinary solution of the latter, thirty drops increased to sixty; and either of these preparations may be also applied externally in the form of ointment. I have never seen any of the bad consequences from the use of iodine, concerning which so much has been written, except in one case, and I have employed it very frequently, and continued it for months. The application of leeches,—contra-irritation in the pelvic region,—a rigidly abstemious and dry diet,—careful attention to the bowels,—and the avoiding exercise, particularly towards the menstrual periods, are all collateral means which are highly necessary, and must not be neglected. I cannot too strongly urge the advantage of applying the leeches to the cervix of the uterus.

I cannot resist stating the effects of the above-mentioned treatment, in the case of a lady, who, after having for some months observed a tumour the size of the bottom of a Florence flask, above the brim of the pelvis, rapidly increasing, both in size and weight, and bearing down in the passages,—mentioned her situation to her friends, who advised medical assistance to be called, which was done accordingly. After a large quantity of iodine had been used without any effect, I was consulted, and found an enlargement, not only above the brim of the pelvis, but also filling up its cavity, producing constipation and micturition, from the pressure upon the rectum and bladder. I gave an unfavourable opinion, but added that there was a possibility of checking the activity of the disease, and the further enlargement of the tumour, at least for some years. There never was a case which better illustrated the advantages of the combined influence of the treatment already mentioned: leeches and contra-irritation were

employed, in addition to the external and internal use of iodine; an immediate effect upon the activity of the disease was observed, and from this time the tumour began to diminish. When I first saw her, she was the size of a woman in the fifth month of pregnancy. In the course of three months the tumour could not be felt by external examination, and at the termination of seven, the treatment was discontinued, as she ceased to feel any inconvenience, except a slight degree of weight in the passages. I have had an opportunity of seeing this patient many times since, and am assured that she feels nothing of her former disease, and that she menstruates regularly. No examination of the parts has been made since the treatment was discontinued, at which time, however, the uterus was found much reduced in size.

There are two interesting cases, shewing the success of the iodine treatment in uterine tumours, published by Dr Baron, and respecting which I find an article in the Med. Chirur. Review for August 1829.

Scirrhus and Cancer of the Uterus.

As these affections are so frequently combined, and as scirrhus so often terminates in open cancer, I shall treat of them together; although I am aware that one species of cancerous ulceration may take place from the immediate effects of inflammatory action of the parts, without the intermediate condition of the scirrhous degeneration. These are diseases which generally shew themselves about the period when menstruation ceases in the course of nature, while vascular sarcoma usually affects those who are younger; but the most active cancer may occur in females under thirty years of age, several fatal cases of which I have myself attended. Women seem to be more liable than men to scirrhus and cancer, which are the most dreadful and intractable diseases to which they are subject. It is generally believed, that the disease first commences in the cervix of the uterus. At first there is a slight uneasiness in the part, with glairy discharge, and a sensation, attributed to weakness or weariness, in the lumbar region; in the course of some time, heat and itching about the vagina take place, with thirst, some degree of fever during the night, and

increased discharge, which at this period is slightly discoloured, having rather a disagreeable odour; these two last circumstances are the first to create alarm, and induce the patient to seek for medical advice. As the disease advances, the pain becomes more severe, burning, and stinging; the discharge more and more foul and fetid, sometimes alternating, however, with large evacuations of a limpid serous fluid; the palms of the hands, and soles of the feet, feel as if scorched, with great restlessness and thirst, particularly during the night. The stomach becomes at times very irritable, so that nothing can restrain the tendency to vomit; the pulse is rapid; the surface either harsh and dry, or bedewed with perspiration; and there is very frequently a deadly paleness, not only of the countenance, but affecting the whole body. Sometimes active hæmorrhage takes place from the passages, which no doubt proceeds from some vessels, the coats of which are ulcerated.

The ulceration is sometimes confined to the cervix and os uteri, and upper part of the vagina; at others, it extends to every part of the organ, as well as the vagina, affecting in some cases the rectum and the bladder, through the coats of which it extends; but more frequently the disease involves the rectum. I have several preparations in my Museum, where perforations are to be seen, not only between the rectum and the vagina, but also between the rectum and the uterus.

The duration of the disease is very various; in some cases it runs through its course in between two and three months; in other instances, when the scirrhous degeneration precedes the cancerous, the course of the disease may occupy years. Sometimes the patient dies a lingering and painful death, the fatal termination being attributed to the gradual decay of strength, by the joint effects of the constitutional irritation, pain, want of sleep, and inanition; at others, peritonitis takes place suddenly, and hurries the patient quickly to her grave.

Treatment of Scirrhus und Cancer of the Uterus.—It is to be apprehended that these degenerations have been too often allowed to run through their course, without sufficient means having been taken to subdue them, or to arrest their progress, from the prevailing opinion of their utter hopelessness. But

I am not singular in believing, that, although not perhaps cureable, much may be done to arrest their progress for many years, and at the same time to make the patient comfortable, provided the disease be attacked early by the means now to be described, which I can strongly recommend from experience. These are, a dry, abstemious, but sufficiently nourishing diet; assiduous attention to the bowels, without producing purging, or intestinal irritation; strict confinement to the horizontal posture upon the occurrence of the slightest pain, and allowing gentle exercise to be taken only when no pain has been complained of for some time, and when the weather is fine. The body must be protected by sufficient clothing, and precautions taken to prevent the possibility of the feet becoming cold. A flannel T bandage should be worn; and upon the occurrence of the slightest pain, discharge, or febrile movement, leeches are to be applied to the part affected, and repeated according to circumstances, followed by the production of contra-irritation, either by means of a blister to the sacrum, or antimony ointment to the lower part of the abdomen, together with the occasional use of the tepid bath.

An examination *per vaginam* should be made from time to time, in order to ascertain the condition of the parts; and we are to form an opinion, along with the other circumstances mentioned, from the size and weight of the uterus, but particularly from the state of the os uteri. It is always a bad sign if it be found more and more gaping and ragged, and if increased pain and hæmorrhage be produced by the touch.

In the advanced stages of the disease, we are often implored to relieve the distress occasioned by the pain, intractable vomiting, restlessness, and want of sleep; and sometimes, I am sorry to say, we are applied to in vain; for the stomach is either too irritable to retain any medicine, or the opiate which is given reproduces in a few hours the irritability of the stomach, or creates a rending headache. Thus we are often placed in the most afflicting position, sometimes blamed for not being able to relieve the present sufferings of the patient, at others for having created, by our remedies, sensations which are less endurable than those for which they were prescribed, so that we are obliged to run through the whole list of nar-

cotics. I have sometimes found one, sometimes another, serviceable in allaying pain; but upon the whole, more benefit is derived from small doses of the sedative solution of opium thrown into the rectum, than from any other means. Care should be taken not to administer one single drop more than is necessary to subdue pain, because the smallest additional quantity will be quite sufficient to excite vomiting, or violent headache. I generally begin therefore with from five to ten drops, gradually increasing the dose, as the system gets habituated to the remedy. Much comfort will be produced by the administration of pills, containing equal parts of camphor and hyosciamus, but more particularly when there is irritation of the bladder, or much nervous irritability.

The sickness and vomiting are generally more difficult to allay than the pain. All known remedies have sometimes failed in my hands, but more success has followed the administration of a pill composed of two or three grains of calomel and two of opium, with a small blister, or a plaster composed of spices mixed with opium, applied to the epigastric region, than any other means.

In all cases where the disease is far advanced, the patient suffers much loathsome feeling from the bad odour of the discharge, which, in many instances, excites or aggravates the irritability of the stomach; and it often requires a strong sense of duty or great affection to sit long at the bed-side. It therefore becomes a very important object to remedy this evil, which we can now do most effectually by throwing injections into the passages, containing the chloruret of lime, or of soda properly diluted with water, and repeated several times during the day, as well as by sprinkling these substances over the room and bed.

CHAP. X.

PROLAPSUS OF THE UTERUS—RETROVERSION OF THE UTERUS —POLYPUS OF THE VAGINA AND UTERUS.

Prolapsus of the Uterus.

This affection may exist in various degrees, from the slightest relaxation to the complete expulsion of the uterus beyond the external parts, when the disease is termed *Procidentia.* The slighter forms of this disease are not easily discovered; but when it exists in a greater degree, a sense of weariness, and pain in the back, is complained of, together with a dragging sensation; the patient feels as if something were protruding from the external parts; and there is usually some discharge like leucorrhœa. As the disease advances, the bladder, from its connexion with the vagina and uterus, becomes affected and displaced, micturition is produced, and sometimes strangury. It should also be recollected, that the more the uterus is protruded, in the same ratio must the vagina be everted. It is generally remarked, that should a woman affected with prolapsus of the uterus become pregnant, the uterus, instead of being pressed lower down by its increased weight, rises in the abdomen as usual; so that it is more difficult to feel the os uteri at the seventh month, than in the unimpregnated state; but I have seen several cases where the disease became aggravated as pregnancy advanced.

Causes of Prolapsus of the Uterus.—The chief cause of this disease is getting up too soon after delivery, or even sitting up in the half erect posture, before the uterus is reduced in size; but I have known the affection to be very troublesome in the virgin state in relaxed habits. Constipation and bear-

ing-down efforts, together with lifting heavy weights, and using any exertion during the time of the menstrual discharge, are also causes of prolapsus.

Treatment of Prolapsus of the Uterus.—The horizontal posture, avoiding every exertion, and keeping the bowels open, are the chief means to be recommended, together with the daily use of cold water to the parts, and an astringent injection, composed either of the sulphates of alumina, zinc, lime-water, or a decoction of oak-bark. In extreme cases, an instrument called a pessary, is to be introduced into the vagina, in order to support the parts.

Should the uterus be found already protruded beyond the external parts, in the state called *Procidentia*, it is often possible to produce reduction by attention to the bowels, after persisting in the horizontal posture for several days, and by employing long-continued pressure with the hand on the protruded part, so as to deprive it of blood; after the uterus is pushed within the parts, it must be retained by a pessary and a T bandage.

Retroversion of the Uterus.

This is a complaint which takes place in the first months of pregnancy, and in which the fundus of the gravid uterus is tilted backwards out of its natural situation, and becomes wedged under the great promontory of the sacrum, the os uteri projecting towards the symphysis of the pubis, where it frequently presses upon the urethra, or neck of the bladder, as does the fundus of the uterus upon the rectum as it passes down along the sacrum. The symptoms are more or less violent, consisting of bearing-down pains, with uneasiness, feeling of weight in the passage, and pain in the belly, partly perhaps from distention of the intestine, but principally from distention of the bladder, which may be felt above the brim of the pelvis. Generally no urine is passed from the bladder; and although there is frequent desire, no satisfactory evacuations take place from the bowels. There are usually febrile symptoms, and considerable restlessness.

Causes of Retroversion of the Uterus.—Although it is a disease of pregnancy, yet I have known it to take place in the

unimpregnated state; but in which cases the uterus was rendered preternaturally large by menstrual obstruction. Constipation and distention of the bladder co-existing, is the chief cause of retroversion of the uterus, assisted perhaps at the moment by some unusual exertion, or efforts when at stool.

Treatment of Retroversion of the Uterus.—I have seen some very curious, but unpardonable mistakes made by practitioners not being able to detect this complaint. If once recognized, which it can only be by examination made in both passages, the treatment is simple, and generally very satisfactory. The chief points to be attended to are, to evacuate the contents of the bladder and the rectum; the first is easily effected by the introduction of the catheter; but it should be known and remembered, that the more the female bladder is distended, the more does the urethra become elongated, so much so, that I am aware of the particulars of a case that terminated fatally, owing to the embarrassment occasioned by this circumstance, and in which the ordinary female catheter did not reach the bladder; this created a belief that it was empty, and threw the practitioners off their guard. Upon dissection, the bladder was found enormously distended, producing peritoneal inflammation, which was the cause of death. The uterus was found between the third and fourth month of pregnancy in a retroverted state. The actual preparation of the bladder and uterus, and a drawing of the relative situation of parts, by the master-hand of Sir Charles Bell, are in my Museum.

Considerable address is sometimes required, after the contents of the bladder are discharged, to clear out the intestines. Castor oil should be given, and some hours afterwards, an injection of tepid water should be thrown into the bowels; but the rectum is so tender, and the obstruction so great, from the pressure of the fundus of the uterus, that this simple operation cannot be trusted to ordinary hands; it must therefore be done by the practitioner himself, in the following manner: The patient being placed upon her knees leaning forward, the pipe, well greased, is to be slowly introduced, with the point properly directed along the hollow of the sacrum, when the fluid is to be gradually thrown in. In former days, attempts were made to place the parts *in situ*, by introducing two

fingers into the rectum, and forcibly pressing forward the fundus of the uterus; but this practice is now seldom employed, at least for some days, and practitioners in the mean time content themselves with keeping the bowels open, and relieving the bladder. Fomentations are serviceable in relieving pain, as are opiates, after the bowels have been freely opened. General bleeding may sometimes, though rarely, be necessary; but it is at least safe practice to draw blood, if there be much pain in the abdomen and pelvis, with tenderness to the touch, and particularly if the pulse be full and hard. It must not be forgotten, that abortion may take place, which is to be managed in the usual manner, and as far as I know, there is only one case on record, which occurred to Dr Merriman, where there is good evidence of the uterus in this situation carrying on its contents to the full period.

Polypous Tumours of the Vagina and Uterus.

Tumours of this class are often met with in practice; for the most part, their structure is hard, and they are covered by an elongation of the mucous membrane of the part from whence they have arisen; sometimes, although rarely, they are soft and lymphatic, resembling those found in the nose. No age is exempt from them, although they are not so frequently met with in very young subjects. Sometimes they are found attached to the vagina, but generally spring from some part of the uterus, and may be attached either by a broad base or by a narrow pedicle; but the latter is the most common, particularly after the tumour has been expelled from the uterus. Uterine polypi may grow from any part of the uterus, of which some fine examples may be seen in my Museum, in one of which a small tumour of this description, of a bright red colour, is seen projecting from the Fallopian tube. Most generally, however, polypi arise from the *cervix uteri*.

The constitutional symptoms are similar to those produced by other diseases of the uterine system: These are, loss of general health and strength, dyspeptic symptoms, and irregularity of bowels. When uneasiness, and a dragging sensation low down in the back, with bearing-down pains, and micturition, are complained of, particularly if attended by dis-

charge, some suspicion of uterine disease is naturally excited; but it is only by an examination that the nature of it can be detected, and then only when the tumour is either totally or partially expelled through the os uteri; considerable mystery will otherwise hang over the nature of the disease. The discharge is at first mucous, subsequently it becomes tinged, and at last, altogether bloody; the bleeding is at times copious, and is supposed to proceed from the rupture of considerable-sized veins. As soon as a polypous tumour in the uterus gains some degree of size, its mechanical pressure produces a sense of weight and uneasiness in the passages, even should it be situated in the vagina;—but if in the uterus, there will be frequent, and sometimes severe pain, which, although partly owing to the same cause, is to be principally attributed to contractions of the uterus, which have all the characters of those observed during abortion in the early stages of pregnancy. In such circumstances, the discharge is considerable, which, together with the constant paroxysms of pain, want of rest, failure of the appetite, &c. weaken the patient; hectic fever will ensue, and the patient may die from the effects of long-continued constitutional irritation, or from exsanguinity or debility. The tumours are said sometimes to ulcerate, and to send forth excrescences; but of this I have not seen any example. On examination with the finger, it is of great moment to be able to distinguish between different diseases which resemble polypus, particularly prolapsus and retroversion of the uterus, and perhaps also steatomatous tumours, which are sometimes formed between the rectum and vagina. A polypus is in general not tender to the touch, although it must be remembered that the vagina, which embraces it, may be in that state; the depending part is generally the largest, at the extremity of which nothing like an os uteri can be felt. Upon tracing with the finger for the origin of the tumour, we shall either come to its attachment in the vagina, and distinguish the uterus higher up, or if it should spring from the uterus, we shall be able to detect the os uteri encircling it like a ring; and in order to prevent any chance of mistake, we should make a point of tracing the whole circle which the os uteri makes. I can scarcely fancy how retroversion of the

uterus can be mistaken for this affection, because, in that case, the uterus will be tender to the touch, and the os uteri discovered projecting towards the symphysis of the pubis, with the fundus directed towards the hollow of the sacrum. Tumours situated in the recto-vaginal septum may be easily distinguished by making an examination by the rectum, as well as the vagina. I have heard of one case which occurred in London, and which made a considerable noise at the time, where an eminent surgeon most unaccountably mistook a relaxed and prolapsed bladder for a polypous tumour, and it was with great difficulty he was restrained from applying a ligature. Every man in the profession, whether physician or surgeon, should be able to distinguish between such diseases by the usual mode of examination, although it may be well, before proceeding to any operation, to be sanctioned by the authority of an accoucheur. The necessity of medical men directing their attention to the diseases of the uterine system in a proper manner, is well illustrated by the following case :—A young woman, aged 25, a widow, and the mother of two children, was operated upon by me for polypus in the winter of 1825. This woman's complaints had continued for two years, during which time she had been affected with increasing pain in her back and loins, frequent desire to make water, and a leucorrhœal discharge, with frequent hæmorrhage, which created great debility. The functions of the stomach became affected early in the disease, and the bowels were sometimes constipated, sometimes too loose. For some months she complained of cough, attended by expectoration, which was sometimes bloody. She had taken every remedy in the pharmacopœia to restrain the hæmorrhage, and had been frequently bled upon the same principle that venæsection is had recourse to in epistaxis, but, as might be expected, without any benefit. At this juncture she fortunately consulted Dr Duffin, now of London, who was led to make an examination, when he discovered the presence of a polypus. I was consulted, and immediately performed the operation, by including the tumour within a ligature in Dr Duffin's presence. The tumour separated on the fourteenth day, and was found to have a very broad base. Leeches were applied to the abdomen several times before

the tumour dropped off, in consequence of symptoms denoting peritoneal inflammation; but the woman made a good recovery, menstruated soon after, all the unpleasant symptoms quickly vanished, and she has ever since enjoyed excellent health.

Treatment of Polypus.—The sooner a ligature is applied the better, and there is no operation more easily performed, if the double canula of Levrèt be used, the tubes of which instrument may be separated at pleasure. A hempen ligature well waxed is preferable to a silver wire, which, on one occasion, after I had applied it, gave way on the eighth day, and required to be renewed. The ligature should in general be made tight from the first, but should there be much pain experienced in attempting to do so, the pressure had better be produced very gradually. Before the operation, the bowels should be brought into a proper state, and after the application of the ligature, the patient should be watched, in order that any inflammatory action either of the uterus or peritoneum may be speedily attacked, and subdued by venæsection or leeching. Opiates are also serviceable to allay pain, and produce sleep.

CHAP. XI.

TUBERCLES OF THE UTERUS—BONY CONCRETIONS—HYDATIDS—AQUEOUS AND FLATULENT DISCHARGES.

Tubercles of the Uterus.

The diseased formation which generally bears this name, is not the scrofulous tubercle which is so frequently found in the lungs, mesentery, and almost all other tissues of the body. The tubercles of the uterus are hard, somewhat spherical-shaped masses, sometimes imbedded in the centre of the substance of the uterus,—projecting into its cavity,—or from its external surface; in the one case, the projecting part is covered by the mucous membrane, in the other by the peritoneum. They have also other characters which distinguish them from the scrofulous tubercle, being fleshy, and more or less vascular, whereas the others have not the slightest carneous appearance; and I have never been able, even after minute injection, to see a single vessel in their substance. Suppuration is unknown, and ulceration rarely takes place. There is as much doubt, however, respecting the pathology of tubercles of the uterus, as of those which are found in the lungs. Some suppose it to be a disease of the cellular substance; while others allege it depends upon that of the proper muscular fibres of the uterus; and there are many who attribute this diseased formation to inflammatory action. On making sections in a great number of cases of tubercles of the uterus, I find that some consist of a hard cartilaginous shell, containing an almost transparent fluid; others are semi-cartilaginous throughout, and show white shining lines running like radicles in every direction, intersecting each other, the interstices appa-

rently containing the proper substance of the uterus; some appear to be minute vesicles, or small sacs containing a fluid, occasionally giving somewhat of a honeycomb appearance; other tubercles approach very near to the nature of bone; while a few bear an exact resemblance in every respect to the proper substance of the uterus. These tubercles are found of various sizes, from that of a pea to a goose's egg, and even larger; they may be either solitary, or exist in considerable numbers, so as to encroach upon the cavity of the abdomen, and occasionally give to the uterus a grotesque appearance, making its cavity, from the os uteri to the fundus, long and winding, in other instances obliterating the cavity of the uterus.

The symptoms produced by tubercles of the uterus depend very much upon their character and size; generally speaking, they are not of a malignant nature, and if so, few or no constitutional symptoms will arise, at least for a considerable period of time. But, if malignant, the symptoms will resemble those of scirrhus and cancer; when large, they produce mechanical pressure upon neighbouring parts, and give rise to corresponding symptoms, both local and constitutional. The local symptoms are, tenesmus, constipation, desire to make water, and pain in making it, weight and bearing-down in the passages. Menstruation is regular, at least in most cases; but occasionally the performance of this function is attended with difficulty and pain; in several instances where the state of parts was afterwards ascertained by dissection, menstruation was observed to be more copious than usual, with shorter intervals between the periods.

Treatment of Tubercles.—Little more can be done than to palliate symptoms as they arise, prevent constipation, and mitigate irritation of the bladder and uterus, should it exist.

Bony Concretions.

Bony or earthy concretions in the uterus, are by no means rare; several undoubted specimens of which are in my Museum. They are of different sizes, and exist, as far as I am aware, solitary; their surface is generally rough, being intersected with fissures and indentations; they are commonly

more or less of a spherical shape; and the presence of such bodies in the uterus may be expected to give rise to general and local irritation. In one case, a substance of this sort was found after death in the uterus of a woman, who had been long subject to uterine irritation and hysteria, and who at last fell a victim to phthisis pulmonalis. Another woman, after having been delivered of a healthy child, appeared to be doing well for twenty-four hours, when pains like those of a second labour took place, which induced a belief that a twin was coming into the world; this however was not the case, something hard was felt passing through the os uteri, which, in the course of a few hours, was expelled during a violent paroxysm of pain, and was found to be a calculus of the description now under consideration: the woman did well, and had no return of the complaint. Another preparation about the size of a turkey's egg has been lately presented to me by a medical friend in Stirlingshire, with the following history: An unmarried woman consulted him about a uterine affection, attended with enlargement of the abdomen and other symptoms, which led him to suspect that she might be pregnant, the possibility of which she admitted. At the termination of a year, or somewhat more, she actually entered into the holy state of matrimony, and became in the course of time "as women wish to be who love their lords." She went on to the full period; strong uterine action came on; a hard, unyielding substance was felt at the os uteri, which was expelled before the child, and was found to be the calculus sent to me. The child was born alive, and the woman made a good recovery.

In some instances, the substance of the uterus itself is converted into calcareous or bony matter.—Two splendid specimens of this kind were lately presented to my Museum; one came from a subject in the anatomical rooms, the other from Dr Grieve of Dumfries, and was found in an aged person who fell a victim to Cholera. In these preparations the osseous deposit is dispersed here and there in the uterus, which in both cases is considerably enlarged and indurated.

Considerable dubiety must always exist in such cases; the calculus can only be discovered by introducing the finger, or a sound, into the os uteri; but even from such an examination

we shall possibly derive little additional light, as it must not be supposed that the calculus, when touched with the sound, will produce the same sensations as those emitted on touching a stone in the bladder, uterine calculi being coated with a thin layer of a substance as soft as boiled cartilage.

Treatment.—We have to allay general and local irritation, as in other uterine diseases. Mr Burns has given references to several interesting cases of this kind, and, among others, to a case mentioned by Gaubius, where the affection was complicated with a prolapsed state of the uterus. After a considerable time a large stone was expelled by violent action of the uterus. On the next day a larger stone presented at the os uteri, which gradually dilated, and allowed it also to pass; and he states, that smaller stones were extracted from time to time, and the patient gradually got well. In the 1st Volume of *Le Journal des Savans*, a case is related by Beale, in which an incision was made into the uterus of a woman, and a calculus extracted, which had existed for eight or nine years with insufferable pain, after which she recovered. At first the concretion weighed nearly 4 oz. but after it was dried it became very light for its size. Mr Burns also tells us of a case of calculus occurring in a child of five years of age, who died in consequence of suppression of urine.*

Hydatids.

Hydatids are sometimes formed in the uterus; occasionally they are solitary, but for the most part are very numerous, being of various sizes, from that of small currants upwards, and attached to each other by a loose cellular-looking substance, which is probably coagulated lymph. The nature of these substances is not known, and the prevailing opinion, that they are produced by blighted conceptions, I cannot believe to be correct. The symptoms are such as are occasioned by any other cause of uterine irritation, and are accompanied by uterine efforts resembling labour-pains. If the true nature of the complaint were detected, which it can only be by a par-

* In a late dissection of an aged woman who died of cholera, the arteries of the uterus were ossified. The organ itself was in a state of extreme atrophy.

tial discharge of hydatids, it might be serviceable to introduce an instrument like a sound into the uterus, for the purpose of breaking them down, and loosening any adhesions which may exist between them and the uterus, and afterwards to exhibit an infusion of the ergot of rye, made with two drams of that substance in four ounces of water, which, from the violent uterine action it induces in certain cases of lingering labour, I would expect to be very effectual in causing the expulsion of hydatids. It must be understood, however, that I merely speak from analogy; and it must be remembered also, that while this remedy will be, at least, innocent in the case of hydatids, or any other soft substance contained in the uterine cavity, it might be fatal if used to produce the expulsion of a bony concretion. Local and constitutional irritation must be relieved by the means already recommended, and after the discharge of the hydatids has taken place, every measure must be used to re-establish the general health.

Aqueous and Flatulent Discharges.

Both of these affections, but particularly the first, frequently attend hydatids, as also scirrhous and cancerous affections of the uterus and vagina, and more particularly the cauliflower excrescence. I was lately consulted about a young married woman, the mother of three children, respecting a very copious discharge of watery fluid which took place from the vagina, alternating with leucorrhœa: she menstruated regularly, and during these times the aqueous discharge did not take place. On examination, I found the uterus rather bulky, and there were several small tubercles on one of the lips of the os uteri, but neither pain on pressing it nor gaping of its lips; the vagina felt much relaxed. In this case, there were considerable flabbiness of person, and weakness of habit, which I attempted to improve; but as I could neither persuade the lady to take medicines, nor, in fact, to do any thing she was desired, I gave up attending; and have no doubt, that in the course of time a scirrhous affection of the uterus will take place, the seeds of which already exist, but which might have been warded off by proper treatment.

The discharge of flatus from the vagina, I have most fre-

quently remarked soon after delivery; it speedily wears off, and rarely continues to be a source of annoyance beyond a week or ten days. This affection very seldom presents itself in other states of the system, but cases have been known to occur. I have heard of two instances where ladies have been obliged, in consequence of irregular and loud explosions entirely beyond their controul, to seclude themselves from society,—an unnecessary restraint, because such occurrences may be prevented by wearing a small canula in the passages.

In the flatulent, as well as in the aqueous discharge, which does not depend on cancer, the complaints, I conceive, may be altogether removed by means taken to improve and invigorate the general health,—such as, proper regimen, cold or warm bathing, and attention to the bowels. Considerable benefit will also be derived from throwing astringent injections into the passages twice or thrice a-day.

CHAP. XII.

FLUOR ALBUS AND LEUCORRHŒA.

Considerable difference of opinion exists in the minds of the profession respecting the application of these terms :—some use them synonymously : others apply the term fluor albus to designate the existence of a white discharge from the passages, which is unattended by any marked constitutional symptoms, and which they suppose to proceed from the vessels of the vagina. They give the name of leucorrhœa to the discharge when it is opaque, and when the general health is much involved ; in which circumstances they conceive the secretion comes from the uterus itself.

The mucous membrane lining the uterus and vagina is constantly bedewed with a mucus secreted by its vessels, which in the healthy state of parts is merely sufficient to keep the surface moist ; but it very frequently happens, from various causes, that this fluid is poured out in superabundant quantity, which is then discharged from the passages, and has commonly obtained the name of " Whites." It affects females of all ages, and frequently attacks even infants. It is a disease respecting which medical men are seldom consulted, unless the patient suffer pain, or the discharge be excessive, occasioning general debility, and perhaps producing excoriation of the parts.

Considering the one to be an advanced stage of the other, I shall treat of both under the general term Leucorrhœa, without reference to the colour, quantity, or seat of the discharge.

Symptoms of Leucorrhœa.—Patients for the most part complain of a sense of weakness, weight, and often severe pain in the back, attended by a discharge of glairy transparent mucus in considerable quantity, having the appearance of new made

thin starch, which, however, sometimes looks milky and opaque. The discharge and constant pain, sooner or later, produce debility and impaired health; the functions of the stomach and bowels become impeded, the abdomen full, often much distended by flatulence; the countenance in time assumes a pale and pasty appearance; the lips lose their colour; the eyes their natural brilliancy; the extremities are cold during the day, and for some time after retiring to bed, when slight fever takes place, and they become burning with heat. Sooner or later, if the disease be not checked, palpitations occur, and the legs become anasarcous. The head also suffers in most instances, the patient complaining of headache, and occasionally of vertigo.

These symptoms do not succeed each other rapidly in women of strong constitutions, in whom it usually takes a course of years; but in weakly habits, the disease is more rapid and severe in its consequences. The menses continue to flow very regularly in slight cases; and at these times the leucorrhœa generally disappears, and returns again as soon as the period is completed. Occasionally the menstrual discharge is much increased in quantity, and is irregular in its periods; it also often happens that obstructions take place, and at the monthly times when a woman should be "unwell," the leucorrhœa is found greatly increased in quantity, and accompanied by more severe pains in the back and loins.

In addition to what has been above mentioned respecting the discharge, it may be stated, that it has sometimes a purulent appearance, and is occasionally tinged with blood; but when this happens, or when it becomes fetid, considerable apprehensions may be entertained respecting the condition of the uterus. In all cases of discharge, an examination *per vaginam* is absolutely necessary.

Causes of Leucorrhœa.—Leucorrhœa often takes place in full plethoric habits, and in women who are much exposed to heat; it may also occur in weak, emaciated subjects; and in both circumstances, may sometimes depend on increased action of the secreting vessels, approaching perhaps to inflammation. It may also be produced by causes which tend to weaken the action of these vessels, as frequent abortions, excessive venery,

and long-continued exposure to cold and fatigue. It may be also occasioned by the presence of ascarides in the rectum,—by polypus, prolapsus, and other affections of the uterine system,—and also by scirrhus and cancer, which may be suspected if the person be beyond the meridian of life, and the discharge excessive, tinged, or fetid. Some constitutions are more prone to be affected in this manner than others; I cannot, however, point out any particular temperament, or personal appearance, which marks the susceptibility; but women are more frequently affected during pregnancy than at other periods, which may be well accounted for from the increased determination of blood to these parts. There can be no doubt that the unnatural, but, as it has been termed, refined manner of bringing up females in this country, also predisposes to it.

Treatment of Leucorrhœa.—In all severe and suspicious cases, the practitioner should take an early opportunity of examining the state of parts, in order to be satisfied whether or not the discharge depends on organic disease; for if it do, he cannot confidently promise success from any remedial agents he may employ. Few diseases connected with discharges, from whatever part of the body they may proceed, should be hastily and rashly suppressed, or treated in any other manner than as constitutional affections. In leucorrhœa the remedies must be applied to the general system first, and not to the parts themselves, as if it were of local origin; the constitution, in fact, must be prepared, in the first instance, to do without the discharge.

However young and plethoric the patient may be, I cannot fancy a case which will require venæsection, unless there be some unusual circumstances attending it, as very violent pain, and high constitutional excitement; but I have seen much advantage in weak, as well as in strong subjects, from applying leeches to the groins, when harassed with constant uneasiness in the uterine region; the number of leeches is regulated by the condition of the patient—in some cases four will suffice, while in others a dozen may be required. But it may be hereafter found, that more decided advantage may follow the application of leeches to the os uteri.

Plethora can be reduced much more effectually and perma-

nently by a spare, dry, but sufficiently nourishing diet, and by acting upon the bowels, than by any other means. Regular but not violent exercise, should be recommended; long walks are to be avoided, as well as every other cause which tends to produce fatigue. If the patient be weak, the diet should be more nourishing, the exercise less fatiguing, and wine may be allowed, or any other more palatable stimulant; but the stomach must never be over-distended, and the use of slops should be entirely discountenanced. Should there be any evidence of the existence of worms in the rectum, the usual remedies, particularly turpentine injections, must be employed. After these steps have been pursued for some time, perhaps for a week or ten days, remedies may be used to suppress the leucorrhœa.

The local remedies consist of different astringent injections thrown into the vagina, by means of an ordinary bag and pipe, or a womb syringe; these are composed of solutions of the sulphates of zinc, alumina, iron, copper, or the acetate of lead; or infusions of vegetable astringents, such as green tea, oak bark, or galls. They should be used at first weak, their strength being afterwards increased if necessary.

It has been strongly recommended by many authors, to use occasional emetics; I have accordingly exhibited them, but without any apparent good effect. A gentle mercurial course, cicuta, cantharides, the different resins and balsams, particularly copaiva and turpentine, have also been recommended, and are considered by some as specifics, together with cubebs, and electricity, which is made to pass through the pelvic region. There can be no doubt that considerable benefit has been derived from the employment of each of these means, therefore one may be had recourse to after another; but from my own observation, I may state, that better effects have followed the use of the acetate of lead, and the tincture of cantharides, than of any other remedies. An occasional opiate is serviceable for allaying irritation, and producing sleep. Women, particularly those in humble stations, are very fond of having recourse to strengthening plasters; but the same end,—viz. support to the back,—may be effected by proper stays or a flannel bandage, without the disagreeable circumstances re-

sulting from the plaster. Tonics have also been recommended, as well as cold and warm bathing; to the occasional use of the former there can be no objection, and cold bathing in the open sea at the proper season, is often serviceable in cases where there is no disease of the uterine system, and the patient not debilitated.

If the *os* and *cervix uteri* be found, upon examination, to be tender, swollen, or doughy,—if there be severe shooting pains in the pelvis or loins,—and if the discharge be of a milky whiteness, then we must certainly have recourse to the internal application of leeches, and to the use of the warm hip-bath, which should precede all other remedies.

Women who are liable to leucorrhœa, should avoid violent exercise, and exposure to extremes of heat or cold; they should wear warm clothing, attend scrupulously to the state of their bowels, abstain from eating or drinking any article that is known to disagree with the stomach; and they should make a point of using the *bidet* twice a-day.

CHAP. XIII.

DISEASES OF MENSTRUATION.

Under this head I shall treat of five diseased conditions of Menstruation, which present themselves in practice.

1. Amenorrhœa, or obstruction of the menses.
2. Dysmenorrhœa, or painful and difficult menstruation.
3. Immoderate flow of the menses.
4. Menorrhagia.
5. Circumstances occasionally attending the cessation of the menses.

Amenorrhœa.

Under this denomination are generally included retention of the menses, and suppression; the former has also been termed *emansio mensium*, and implies that the discharge has not appeared at the usual period of life; the latter denotes that the discharge has become suppressed, which may occur in two circumstances to be afterwards mentioned.

Retention of the Menses.—This form of Amenorrhœa becomes the subject of medical treatment only when a girl passes the usual period of life at which the discharge ought to occur, and when the constitution feels the want, which is evinced by the occurrence of a variety of symptoms, and the disorder of several functions. This time of life varies remarkably in different countries, occurring, it is believed, much earlier in hot than in cold regions; but even in the same climate, great differences are observed. The discharge ought to appear in connection with other signs denoting puberty; in temperate regions this happens about the age of fourteen; but even in

this country I have known several instances at nine years, but a greater number in which the discharge had not appeared at eighteen.

The usual signs which denote constitutional suffering are the following :—The patient loses her natural liveliness, forsakes her usual amusements, and even neglects necessary employments in which she ought to be engaged. She is restless, peevish, and feels incapable of exercising her mind, or fixing her attention ; complains of weariness, lassitude, and debility, and at the same time loses flesh. Her face becomes pale, and her skin sallow ; she has either no appetite, or experiences unnatural cravings to eat indigestible matter, which at other times create disgust—such as cinders, lime, chalk, and common earth. When these symptoms have continued for some time, dropsical effusions occasionally take place, not only in the extremities, but also in the abdomen, although the distention of the latter generally arises from flatulence, which occasions great uneasiness to the patient, sometimes even amounting to pain ; the belly becomes more swollen after meals, and particularly towards evening. The urine is either scanty or copious, and the bowels are torpid ; it is difficult to keep the extremities in a natural state of heat ; and when the feet are cold, headache is generally complained of; indeed it frequently takes place, whatever may be the condition of the extremities. Some patients become extremely apprehensive and anxious about their situation ; while others have a melancholy appearance, and seem to care little about surrounding objects or themselves ; and in some, anomalous hysterical affections appear. Cough and hurried respiration, if they have not already occurred, soon take place, together with expectoration. The bowels, which were formerly torpid, now perhaps become irritable and loose ; at length the patient is affected with perpetual diarrhœa, and hectic fever ; and dies, greatly emaciated, sometimes with, at others without, any of the appearances of phthisis pulmonalis.

This description is drawn from life, and is also an example of the disease called *chlorosis* in its worst form. Chlorosis, however, is not peculiar to the female, as several exquisite cases have fallen under my notice in young men about the age

of puberty, and for the occurrence of which it is difficult to account; whereas in women, it may be said to be excited by the want of a natural and periodical secretion.

In this form of amenorrhœa, the symptoms sometimes take a different course; cough and expectoration take place, with slow emaciation, the patient becoming better and worse for some years, the menstrual discharge, however, not appearing; and she dies at length of chronic phthisis, sometimes accompanied by ulceration of the bowels, or of disease of the liver. Tubercles are occasionally found in most organs of the body, and the immediate cause of death may be chronic peritonitis.

Causes of Retention of the Menses.—This form of amenorrhœa may depend, according to Mr Burns and others, on a want of vigour in the system, by which not only a new action is prevented from being formed, but also those actions which were formerly performed become impaired; or on a special want of energy in the uterus; but in far the greatest number of instances, menstruation is postponed merely from the general debility of the system. Absence of the menses depends in some cases upon a malformation of the organs of generation, as want of the ovaria, imperfect formation of the uterus or of the Fallopian tubes, cohesions of the vagina and labia, or an imperforated state of the *os uteri*, or of the hymen.

Treatment of Retention of the Menses.—When a girl passes the usual period of life without menstruating, her friends naturally become anxious about her situation; and this of course increases, if her appearance denote loss of health, and more particularly should the symptoms be severe. When a medical man is called, his first duty is to inquire into the cause of the retention; but his investigations will be incomplete, unless he make an examination, to ascertain if there be any malformation at the orifice, or in the course of the vagina, or at the *os uteri*. Notwithstanding this uncertainty, however, delicacy forbids such an examination, at least for a time, till other means have been tried in vain, and life be likely to pay the forfeit. It is evident also that the want of the ovaria, or imperfect formation of the tubes, and in some cases even of the uterus itself, cannot be discovered by examination.

The uterus may be perfectly well formed and healthy, but may want a certain something to enable it to commence the first of its peculiar functions. Now this certain something, of which we really know nothing, has been denominated want of energy of the uterus itself; and we judge of it by the health being as yet good, and the constitution strong and vigorous; although the pain, restlessness, and other slight symptoms, shew that this will not be the case long, unless something be done by art. The humoural pathologists, influenced by their peculiar views, recommended opening a vein in one of the lower extremities; and it may be often serviceable. The best effects are sometimes produced in robust, plethoric habits, by taking a small quantity of blood at one, two, or three consecutive monthly periods: these monthly periods announce themselves every third or fourth week, by the aggravation of symptoms, and increased suffering of the patient. Instead of general bleeding, however, I now prefer the application of six, eight, or more leeches to the region of the groin, or in the neighbourhood of the vulva, or if admissible, to the os uteri itself. The discharge of blood relieves the system, and gives the uterus time to prepare for the office it has to perform, and prevents the general health from becoming affected; while the discharge from that part of the body tends to excite some action in the uterus, which it is impossible to explain, and which may be produced either by unloading the vessels of the uterus, or by exciting a determination of blood towards it and the other parts of generation. I am confident of the fact, although uncertain about the theory, having often observed the menstrual discharge appear out of its ordinary course, upon the application of leeches to the pelvic region or abdomen, when the attainment of no such object was in view. But on the other hand, it ought also to be mentioned here, that menorrhagia is often checked by the same means, which shall be mentioned more at large when treating of that disease. A good deal of the benefit derived from the application of leeches may be attributed to the effect of the bites produced upon the system at large. With respect to general and local bleeding, however, the strongest protest might be recorded against large and frequently repeated abstractions of

blood from the system in this class of cases. It is the habit of some to take blood locally or generally upon every slight occasion, and upon the occurrence of every headache, difficulty of breathing, and anomalous hysterical symptom, till patients cannot pass a week without the operation, and at length the constitution becomes irretrievably ruined. Medicines, called *emmenagogues*, have been long in use, but are now for the most part laid aside by practical men, who agree that they are generally injurious. I cannot speak too highly, however, of the benefits to be expected from the use of cantharides, in this and all other cases of diminished and obstructed menstrual discharge, commencing with doses of ten drops of the saturated tincture three times a-day, and gradually increasing the quantity to thirty, forty, and even sixty drops. Care should be taken, however, to give proper directions that the remedy be immediately suspended upon the occurrence of any irritation in the bladder or urethra, when camphor and hyosciamus should be exhibited, together with diluents, particularly lint-seed tea.

Constipation is not only to be prevented, but the bowels are to be daily and freely acted upon by aloetic pills, conjoined with assafœtida, in case of pain from flatulent distention of the bowels. Aloes is preferable in this case to any other purgative, because it appears chiefly to act upon the rectum; care must be taken, however, that irritation of the rectum is neither too much nor too long excited, lest it produce piles. The hip-bath is a powerful remedy in this class of cases, and is to be used daily; it is preferable to the general hot-bath, from the increased heat which partial immersion will enable a patient to sustain. At first the water should be somewhat under 100°, but the temperature should be afterwards increased by the addition of more hot water, till it is as warm as the patient can well bear. It is found beneficial to put an ounce of mustard in the bath. The clothing must, in all cases, be adapted to the constitution of the patient and the season of the year, and cold feet avoided. The patient should be much in the open air, taking such a degree of exercise as she can bear without fatigue; the exercise must be regular, however; and riding on horseback is particularly ser-

viceable, as well as the use of a swing. Agreeable society, and every thing which can amuse the mind, are to be enjoined, but crowded and hot rooms must be avoided. The diet should be regulated according to circumstances;—if the patient be full and plethoric, it should be light, abstemious, and dry;—if weak, it should be more nourishing, but the stomach must never, on any account, be loaded. In neither case is the use of wine contra-indicated, unless there be fever, or considerable local irritation.

Cold bathing in the open sea often produces very unpleasant consequences in all forms of amenorrhœa, although it may certainly be serviceable in a few cases. It is a remedy too frequently had recourse to, particularly in Scotland, for every malady, and too often receives undue countenance from medical practitioners, even of some degree of eminence. Frequently do I see cases of *phthisis pulmonalis*, asthma, dropsy, diseases of the uterus, &c. which, if not produced, are certainly aggravated, by sea-bathing. I scarcely ever have occasion to ride along the sea-side without being grieved at seeing poor emaciated children, in the last stage of *tabes mesenterica*, and other scrofulous affections, screaming and struggling while they are dipped. It may be mentioned once for all in this place, that when the system is much reduced, it cannot stand the abstraction of heat which is occasioned even by undressing in an exposed situation, such as a bathing machine, not to speak of that produced by complete immersion.

External frictions are very serviceable, particularly when performed with a horse-hair glove. Rubefacients, and even more severe contra-irritation, by means of mustard plasters, blisters, and antimonial ointment, are also found useful for relieving internal pains. A local stimulant is much employed in England, composed of one or two drams of the aq. ammoniæ pur. to twelve or sixteen ounces of warm milk or thin starch; three or four ounces of which are injected into the vagina four or five times daily.

The mechanical obstructions in the passages may be divided into two classes; viz. those occasioned by cohesion of the sides of the vagina or labia, and an imperforated hymen; and those caused by an imperfect or imperforated state of the *os*

uteri itself All these cases are comparatively rare, but few men can have been in extensive practice for twenty years without meeting with several, and therefore they require some notice in this place. In the first set of cases, in addition to the constitutional symptoms and local pain already mentioned, there is great fulness, distention, and a sense of weight in the passages, accompanied sometimes with severe pain, and a feeling of bursting; straining at stool and micturition; together with enlargement of the abdomen, which excites suspicion of pregnancy. The nature of the case can only be determined by examination, and can be relieved only by the knife.

In the second set of cases, there is greater difficulty in detecting the state of parts, from the natural impediment to an examination which exists at the orifice of the vagina; but I may mention, at least as a curious coincidence, that in the only two cases of imperforated os uteri which have fallen within my observation, there was no hymen, and the passages easily admitted the introduction of two fingers. In a third case of very imperfectly formed os uteri there was a hymen, but it offered no obstacle to the necessary examination. One of the former individuals would not submit to the os uteri being punctured, became perfectly exsanguined and chlorotic, affected with difficulty of breathing, cough, and expectoration, and died since the publication of the last edition. The other case I shall now relate: A young woman, aged 22, came from the country to consult Dr J. A. Robertson, who sent her to me in the beginning of the winter 1826. The following particulars were collected from herself and a female friend who accompanied her. The menstrual discharge had not yet appeared; she had always been healthy till she reached the age of sixteen, from which period her health began to suffer, and since which she had regularly complained every month of pains in the back and loins, together with a sense of weight and bearing-down in the passages. For some time her sufferings were slight, and she was still able to perform her duties as a servant, but for the last two years she had become comparatively weakly and emaciated, not knowing what it was to enjoy a day's ease; and she stated, that she would readily submit to

any thing which might cure her. The girl appeared to be above the middle stature, the mammæ were undeveloped, she was of an awkward shape, and indeed her appearance, colour of skin, and sound of voice, were rather masculine. Her abdomen was not tumid, but it was stated to be occasionally swollen, particularly after meals. She seemed to be of a nervous temperament, and was exceedingly shy and timid. Upon examination, the fingers passed readily into the vagina, and the uterus was felt much lower than usual, but I could discover no orifice. Dr Robertson had previously detected the same fact, but had not then communicated the circumstance to me, thinking he might be mistaken. The examinations were repeated many times, and after feeling the spot where the orifice ought to have been, which was distinguished by a small dimple, I attempted to introduce one of the smallest silver probes that could be made, but was unsuccessful in every attempt. It then occurred to me, that the malformation might be owing to an extension of the mucous membrane over the orifice, in which condition we sometimes see the urethra of a new-born male child. I determined upon giving her the chance of a cure, particularly as the means to be used would not certainly produce severe pain. Accordingly the sharp and triangular extremity of a silver probe was introduced, directed by the finger, and carried to the part above described, and a perforation made by employing a rotatory motion; the instrument was then withdrawn and the round point introduced, which then readily passed up to the fundus of the uterus. For several days she complained of slight pain, attended with some discharge of mucus, a little tinged here and there with bloody specks; and nothing further was done till the irritation had subsided. In about eight days the further dilatation was attempted, and persevered in daily, the size of the instrument being increased, till by the twelfth or thirteenth day I was able to introduce No. 6. male bougie to the fundus of the uterus. On the following day there was the appearance of so much irritation, both local and constitutional, that no further attempt was made. In two days afterwards she menstruated, and has been regular ever since, and suffers neither pain nor inconvenience. Her health and strength soon recruited, and

in a short time her appearance became quite feminine. I saw her accidentally a few months before this article was corrected for the fourth edition in 1835, and she was then in the enjoyment of good health.

In the case of amenorrhœa from imperfectly formed *os uteri*, the patient had at various times been afflicted with violent nervous symptoms; pain in the abdomen, sometimes of a distressing nature, and obstinate affections of the stomach and bowels; together with occasional retention of urine, and anomalous hysterical complaints. At every menstrual period she passed a little mucus, which was now and then slightly tinged, but had never the natural appearance, and it was always attended with great pain. After attaining the age of twenty-three, when her health was greatly impaired, and after she had tried all known remedies in vain, she most reluctantly, and after great delay, submitted to examination; and the *os uteri* was found so small as to be scarcely perceptible. She menstruated satisfactorily after several bougies had been passed through the os uteri, but I never succeeded in penetrating completely into the cavity of the uterus, either from an obstruction in the cervix, or from what appears to me to be more probable, a curvature of the canal. Nevertheless, after dilating the passage as far as could be reached, (No. 7. bougie,) she menstruated naturally, freely and without pain, and her health became wonderfully improved. It is but fair to mention, however, that this case was also complicated with extensive constriction of the rectum, which, I fear, is not yet completely removed. Since the publication of the former editions several cases have occurred, the majority of which have terminated successfully; but in candour I must state, that in one case a complete failure took place.

Retention of the menses, arising from, or accompanied by general debility, must be treated by means adequate to restore the health and strength of the individual, in addition to the other remedies above mentioned.

Suppression of the Menses.—The second variety of amenorrhœa is, suppression of the menstrual discharge, which may occur in two circumstances; either it may not return at the next expected period, or it may be suddenly checked

during its flow; and this last has been termed "checked menstruation." Women affected in this manner are said to be obstructed.

The first circumstance is one of the natural effects of pregnancy, and is sometimes produced by disease—for example, by general bad health; weakness caused by great loss of blood; long-continued fatigue; exposure to cold at the time the discharge was expected; improper food; excessive mucous discharges, as in leucorrhœa; frequent abortion, which injures the healthy functions of the uterus; and also by various diseases of the uterus.

The second circumstance may be produced also by exposure to cold, but is often the immediate effect of violent mental passions. Grief has often this effect; and I have known it caused by excessive joy. Constipation must likewise be regarded as a cause, particularly of the first variety.

When the menses are suppressed, hæmorrhage frequently takes place from the lungs, stomach, and nose; the abdomen becomes tumefied and painful, the mammæ are sometimes tense and painful; the tongue is generally foul; the appetite bad; occasionally feverish symptoms take place; and sometimes death follows in the train of consequences.

Treatment of Suppression of the Menses.—In checked menstruation, I have seen the discharge brought back in twenty-four hours by proper treatment. If there be much vascular excitement, the lancet may be necessary in full, plethoric individuals; and the blood may be taken from the lower extremity, if a vein can be found conveniently situated; but upon the whole, leeches are preferable, applied to some part of the pelvic region, or to the os uteri. If the patient be not troubled with piles, two aloetic pills may be given every third or fourth hour, till the proper effect is produced, except in cases of excessive constipation, when milder remedies are to be used, assisted by large injections of tepid water. A case so complicated may require venæsection. The warm ammoniacal injection may at a subsequent period be thrown into the vagina, and the feet bathed in very warm water; but the hip-bath impregnated with mustard will be found most beneficial.

When obstructions take place in debilitated constitutions, purging must not be carried too far; indeed, it may be mentioned as a general rule, that strong physic should not be given in such circumstances: but the bowels are to be kept gently open by suitable medicines, and particularly by mild injections. The patient should be allowed a nutritive diet, easy of digestion; and a sufficient quantity of wine, or brandy if the former do not agree, will be found to be the best tonic; but the diet, the exhibition of stimulants and tonics, should be regulated by the circumstances attending each particular case. If the stools shew that the food is passed undigested, or if the tongue be furred, or be red and dry, animal food of any kind must be given with caution, and I think prohibited altogether when the tongue is in the conditions above described; but there can be no objections to the use of wine, indeed it will in general be beneficial, unless it excite fever.

In many cases of derangement of health in females, a shower-bath taken immediately before dinner will be found serviceable, and may be used with warm or cold water according to circumstances; but generally, the more a patient is debilitated, the warmer should be the water; the body should be afterwards well dried, and fresh garments put on. Exercise, and other remedies already so fully noticed, must be had recourse to. It may be further added, however, that preparations of iron are in great repute, and are well known to women under the name of "steel pills," "steel drops," &c.; but I believe they have no specific effects; should other remedies fail, however, it may be as well to try them.

It becomes a question how far the introduction of the bougie into the uterus may be applicable in obstinate cases of this kind, when other remedies have failed, and the general health has become affected. I have tried it in three bad cases: in two of these the menstrual discharge appeared soon after, in the third it completely failed; but the first two cases are scarcely to be regarded as satisfactory, because other remedies were employed at the same time.

Dysmenorrhœa, or Painful and Difficult Menstruation.

Although in dysmenorrhœa the discharge is generally

scanty, yet it is sometimes in natural quantity; in some instances the discharge contains fibrous shreds, while in others a small organized mass, the shape of the cavity of the uterus, which in common language is called a "false conception," or a "mole," is thrown off.

A few days before the discharge is expected to appear, women affected with dysmenorrhœa begin to complain of pain, more or less severe and constant, in the back and loins, as well as in the pelvis; at last a scanty discharge appears, attended with increasing pain and suffering. In investigating into the precise nature of these pains, they have been described to me in various ways, and as existing in various degrees, from a sense of weakness, weariness, weight, and tightness, to violent cramp, spasm, colic, and bearing-down, which last is sometimes so violent as to resemble the expulsive pains of labour, particularly when shreds of membrane are passed, and still more so when an organized mass is expelled. The abdomen becomes swollen, sometimes tense; flatus may be heard moving from one convolution to another; the appetite is impaired; the bowels are constipated; the stomach is often irritable, sometimes affected with violent vomiting; the tongue is foul, and there are often febrile symptoms; the urine is sometimes suppressed, at others retention takes place. Some women suffer pain only during the first day, while others do so during the whole period.

Dysmenorrhœa sometimes takes place from the very commencement of menstrual life; or it is dated from the period of marriage; or after the birth of a child, generally speaking, the first child; lastly, it may take place at any period of life, and in such cases it is generally attributed to cold. The disease is of very common occurrence; much of the distress and bad health of females is owing to it, and many fall victims to consumption in consequence of diseased action being excited in the system by the periodical sufferings. These periodical sufferings, however slight at first, afterwards become more severe and of longer duration, so that at length some women are beginning only to recover from the effects of one period when the approach of the next is close at hand. At last, from the combined influence of the actual suffering during the pe-

riods, and the anxiety of mind during the intervals, the patient's health and strength are entirely destroyed. This would happen much more frequently and speedily than it actually does, only that females do not suffer with equal severity at every period; and the remark has often occurred to me, that after a very severe time, women escape once, and sometimes twice, with comparatively little uneasiness; but when the third period arrives, it is generally attended by very violent pain: this is more particularly the case when shreds of membrane and organized substances are discharged.

It has been generally remarked, that few women affected with dysmenorrhœa bear children, and it is described by all authors as a cause of barrenness. Mr Burns makes the following statements when treating of the causes of sterility:— "The menses are either obstructed or sparing, or they are profuse or too frequent;" and again, "It is extremely rare for a woman to conceive who does not menstruate regularly; and on the contrary, correct menstruation generally indicates a capability of impregnation on the part of the woman." Dr Mason Good, when speaking of the sufferings of women affected with dysmenorrhœa, makes the following statement: "The frequent return of which embitters the life of the patient, and effectually prohibits all hope of a family." Dr Denman supposed that no woman in such circumstances can conceive. There can be no doubt, however, that Dr Denman was not quite correct in making this statement; but there can be little question of the fact, as already mentioned, that conception is rare.

Dysmenorrhœa has been observed in females under the most opposite conditions of the system, temperaments, and habits. Some are affected with hysterical symptoms, others not; but in all circumstances, the disease is represented by authors as most intractable; and indeed it is stated by one and all of them, that the treatment consists in palliating symptoms during the period of suffering, and that "time, in general, removes the disease better than medicine, which is only to be advised for the relief of pain, weakness, or any other symptom which may attend or succeed to this state." Dr Mason Good, in noticing the intractable nature of the

affection, says, " The disease, moreover, is peculiarly obstinate, and in some instances has defied the best exertions of medical science, and has only yielded to time, and the natural cessation of the discharge."

Pathological Remarks respecting Dysmenorrhœa.—Dysmenorrhœa has been attributed to inflammatory action in the uterus, particularly when membranous and organized substances are discharged. These were proved by Dr Hunter, and Dr Baillie, to resemble the *membrana decidua*, formed by the lining membrane of the uterus immediately after conception. The disease has also been attributed to spasm; and loose and obscure hints are given in various works, of its dependance on organic affections of the uterine system. Thus Mr Burns has observed, " If no *organic affection* can be discovered, and the whole appears to arise from spasm, we have only to trust to opium in the meantime, with such treatment in the intervals as the state of the system may point out." There are others who suppose that the disease is owing to a want of nervous energy in the uterine system—to constipation —or exposure to cold and damp.

It always appeared to me, that there might be some mechanical cause for dysmenorrhœa, but it was not till the year 1823, that I first entertained a belief it might be owing to the small size of the *os uteri*. In that year a medical friend presented me with a preparation of the uterus and its appendages, in which the os uteri was so small as scarcely to admit a hog's bristle. Since that period I have had many opportunities of investigating this interesting subject, and have now obtained many preparations taken from the bodies of individuals who died of different diseases, particularly of phthisis, and whose histories prove, that they had laboured under dysmenorrhœa from the very beginning of their menstrual lives. In these preparations of the uterus, the orifices, instead of being shaped like the mouth of the tench fish, are either circular, or nearly so, and some of them are so small as only to allow a bristle to pass; others are a little larger, admitting a small silver probe.

I am far from alleging, however, that dysmenorrhœa is *always* produced by a small os uteri; on the contrary, I believe

it may occasionally depend on inflammation of the lining membrane of the uterus, as well as on inflammation in the substance of the cervix uteri, and on the encroachment of tumours diminishing the calibre of the passage through the cervix. But I maintain, that the condition of the *os uteri* above described accounts satisfactorily for many cases of dysmenorrhœa,—so far as my investigations have extended, I am inclined to say, it will account for the majority; although in candour I must mention, that one preparation in my possession appears to invalidate the evidence afforded by the others. In it, the mouth of the uterus is very small, and yet the woman to whom it belonged is stated to be the mother of several children; she died in a public establishment, but the history of her menstrual life is unknown.

By this condition of the *os uteri*, not only are all the phenomena which take place in dysmenorrhœa most satisfactorily accounted for, but also the intractable nature of the disease, and the unsatisfactory result of every mode of treatment hitherto recommended. The menstrual discharge, after it is secreted in the uterus, cannot readily escape in consequence of the small size of its orifice; distention of the organ is the consequence, which, by exciting the contraction of its fibres, produces uneasiness and pain in the pelvic region. When the *os uteri* is very small, and the secretion viscid, or mixed with coagulated blood, shreds of membrane, or organized masses, then the distention becomes more considerable, stronger contractions are excited, producing violent pain. Sometimes the action of the abdominal muscles is called into play, and bearing-down or expulsive pains are produced, resembling in every particular the pains of labour, and continue till the expulsion takes place. Mr Burns, in speaking of the disease, states that it "sometimes produces, *besides uterine pain*, spasmodic affection of the bowels, *or violent bearing-down efforts of the abdominal muscles*, as if it were intended to expel the womb itself."

During these periodical attacks, inflammation of the lining membrane of the uterus, if it do not already exist, is sometimes excited, and in the end the sufferings occasion an entire break-up of the constitution. That dysmenorrhœa should be

so intractable, and the action of remedies so very unsatisfactory as to render the disease an opprobrium to medical science, are not to be wondered at, if my views be hereafter found to be correct. Before I had any opportunity of putting these opinions to the test of experiment, they also appeared to me to be corroborated in a very striking manner by two circumstances :—1. By the action of the *ergot of rye*, which increases the force of the uterine contractions, quickly expelling the contents of that organ, thus in some cases shortening the patient's sufferings materially: 2. By the admitted fact which has been already mentioned, that women affected in this manner rarely, if ever, conceive. The small size of the *os uteri* renders impregnation almost an impossibility, by offering a mechanical obstruction to the passage of the semen into the cavity of the uterus, which it must reach, as proved by the accurate experiments of that ingenious and distinguished physiologist, Dr Blundell of London, as well as by other facts which it is unnecessary to mention in this place.

These views appear to me to be further supported by several preparations in my Museum. In one of these the cavity of the uterus is divided into two compartments, by a strong transverse adhesion. In a second, occlusion of the passage exists at the upper part of the cervix, with appearances of having been produced by the irritation of a polypous tumour; and in a third preparation, the os uteri became sealed up by inflammatory action. On dissection, the uterus in this last case was found enlarged, and contained about two ounces of puriform matter.

Treatment of Dysmenorrhœa.—After the facts and observations above mentioned were collected, my mind became occupied with devising the best means likely to cure the disease. Mechanical dilatation appeared to be the only remedy. I hesitated for some years to carry it into execution, or indeed to propose it, beyond mentioning it in my Lectures, till the case of the young woman affected with amenorrhœa, recently noticed, presented itself in the year 1826. Since that period I have treated twenty cases of dysmenorrhœa, by dilating the *os uteri*, and have permanently cured eighteen of the patients;

among these the two cases of amenorrhœa formerly mentioned are not included.

Of the eighteen successful cases, eight were either young unmarried women, or living in a state of widowhood; ten were married, and living with their husbands. Of these ten, seven subsequently fell with child. This is the statement made in 1832. Since that period I have tried the practice, after every other means had failed, in seven cases: in one of the seven only has it failed, the others have been completely and permanently cured. Of the six successful cases, four have since had a child each. Thus, in *twenty-seven* women, *twenty-four* cures have taken place, and of these, *eleven* have since had children. This plain statement of facts, and a visit to my Museum, should stop the sneers of an illiberal brotherhood.

The instruments employed to produce the dilatation are the common metallic bougies, of different sizes, from that of the ordinary small silver probe to No. 14. The operation is performed, (the patient lying in the position in which women are usually delivered in this country,) by introducing the index-finger of the left hand, till it reaches the os uteri, for the purpose of directing the instrument to the part, which is then to be gently insinuated by a rotatory motion, till it arrives at the fundus of the uterus. Much force ought not to be employed, and little or no pain is produced by the operation. The unpleasant consequences which sometimes take place in treating stricture of the urethra by similar means, viz. shivering, followed by fever, occurred in two instances; the fever, however, was slight, and soon terminated by copious perspiration; and in these, some days were allowed to elapse, before the instrument was again used. In two of the cases, the os uteri was sufficiently large, and well shaped; but the passage became so narrow in the course of the cervix of the uterus, that it required long-continued efforts before the smallest instrument could be introduced; but by perseverance the obstructions were at last removed, and the patients cured. In one of these last two, menstruation was performed without pain till after marriage, when dysmenorrhœa occurred. The other was a young unmarried woman, who menstruated with ease for several years, but after long exposure to cold and moisture,

the menstrual discharge became for a time suppressed, and ever after was performed with pain. The late Dr Kellie of Leith was also consulted about this case, and had I not been encouraged by his advice, I should not have attempted the operation, as on the posterior lip of the *os uteri*, several small elevations like incipient tubercles were felt. This woman called upon me eighteen months afterwards in good health, and stated that she had not felt any uneasiness, or experienced any bad symptoms, since the dilatation was effected.

A lady, the subject of one of the twenty-seven cases, was also perfectly healthy, and menstruated easily till the period of marriage; but her health became impaired soon after, in consequence of her monthly sufferings. On making an examination, an enlargement was discovered, about half the size of a chesnut, on the posterior surface of the cervix of the uterus. I undertook the operation in consequence of the urgent entreaties of her friends, who happened accidentally to know of the happy results which had attended it in other cases, but little hope was offered of being able to do any good; notwithstanding which, a striking improvement in her health soon took place: and this in the end proved to be one of the most successful cases, for menstruation became easy, the tumour rapidly declined, and upon making an examination in about twelve months afterwards, it could scarcely be felt.

None of the women operated upon had suffered for a shorter period than two years; some for three or four; and others for ten. Of four of those who subsequently fell with child, one had been married between seven and eight years, and was reduced to a shadow from constant ailments; but after the operation, she recovered her health, strength, and flesh, and became pregnant at about the termination of nine months from the date at which the bougie was used for the last time. Another had been married three years, and had suffered considerably in constitution, with severe nervous symptoms every month, till at last she became entirely obstructed; and the abdomen being enlarged, I was consulted upon the supposition that she was five months gone with child. From some circumstances which it is unnecessary to mention, I entertained a suspicion that she had deceived herself; and upon mak-

ing an examination, when she supposed herself to be in the seventh month, ascertained beyond all doubt that this was not the case. In the process of time, the operation was performed, and the passage completely dilated,—some months afterwards impregnation took place, and I have since delivered her of three children at separate births.

A third case is that of a lady who had been married two years, and who had had painful menstruation from the first appearance of the discharge; she was in a miserable state of health, had taken a great deal of medicine, but only with temporary relief. Impregnation took place after the third menstrual period subsequent to the dilatation.

The subject of the fourth case had also been affected from the first of her menstrual life, and laboured under the impression that she was therefore never to have a child. After dilating the passage with No. 6. bougie, menstruation took place with so much ease, that she supposed herself quite cured, and would not again submit to the operation. Several months afterwards, however, she felt a return of the pain, the operation was again had recourse to, and the dilatation carried as far as it could be effected with No. 10, which was accomplished two days before her expected period. Menstruation took place freely, and without the slightest uneasiness; she subsequently fell with child, and was delivered of a boy.

In cases of dysmenorrhœa, when this operation may not be expedient, the ordinary plan of treatment must be had recourse to,—viz. palliating symptoms by means of the hip-bath, attention to the diet, the due regulation of the bowels, and the occasional administration of opiates.

If the existence of inflammatory action be suspected in the lining membrane of the uterus, or should there be much fever, it is necessary to apply leeches internally, or use cupping-glasses to the lower part of the back. Since the year 1832, I have been induced frequently to apply leeches internally in cases of dysmenorrhœa, and I have thought always with advantage.

Immoderate Flow of the Menses.

Women sometimes menstruate more copiously than they usually do, so much so, that it appears more like a flooding

than menstrual discharge; but the difference is easily known by the peculiar smell and appearance, and by its not coagulating like blood. This disease is, in general, confounded with hæmorrhage from the uterus, and the general term *menorrhagia* has been applied to both, either when separate or conjoined. I agree with Mr Burns, however, in restricting the term menorrhagia to the discharge of pure blood from the uterus; but in order to be clear and precise in our language with respect to the combined case, we may then say that excessive menstruation is complicated with uterine hæmorrhage.

Many women menstruate more frequently and more copiously than others, and yet they cannot be said to be diseased, because it is natural to them. Therefore it is only to be considered as a disease in the following circumstances,—viz. when it is not habitual, and when it produces weakness or other unpleasant symptoms. Profuse menstrual discharge takes place in every variety of constitution and habit, but is observed more frequently in people of a debilitated, weakly, and relaxed frame of body, and in those whose occupations lead them to constant exposure to heat.

Treatment of Profuse Menstruation.—Medical men are seldom consulted in this affection, except in the worst cases. Should the strength be much reduced, every means must be taken to restore it by proper nourishment, a due regulation of the bowels, the mildest laxatives, and the administration of wine if necessary. During the attack, the necessity of rest in the horizontal posture should be strongly inculcated; and in the intervals, great attention must be paid to regulate the exercise, so that it may be always short of producing fatigue. The shower-bath, bathing the lower part of the body twice a-day in cold water, and even open sea-bathing, may be recommended, under the restrictions which have been so fully insisted upon in the former part of this chapter. Perhaps the acetate of lead may be found of as much service in diminishing this, as it has been in other discharges. Should there be any uterine pain or irritation, recourse must be had to opiates.

Menorrhagia.

I agree with Mr Burns in the propriety of restricting this

term to actual hæmorrhage from the uterine vessels. This discharge occurs in every state of constitution, affecting full plethoric individuals, of active habits, equally with those of a weak, delicate, and relaxed frame. In the former, it may continue for a considerable period without making any inroad upon the general health; but in the latter, the system soon feels the drain; and in either case, if the discharge continue long, the constitution becomes irreparably destroyed. Much depends upon the quantity of blood lost, and upon the length of interval between the attacks. Besides the weakness produced by the loss of blood, the debility is also increased by leucorrhœal discharge, which in general supervenes, together with disordered functions of the stomach and bowels; the appetite soon becomes impaired, and even destroyed, and the bowels irregular, with frequent attacks of diarrhœa, which depress the vital powers nearly as much as the original disease.

Menorrhagia is generally accompanied by pains in the back and loins, frequently by a shooting pain through the pelvis, and sometimes by fever. Anomalous hysterical symptoms frequently ensue, together with occasional distressing paroxysms of palpitation. It is worthy of remark, that sooner or later, symptoms denoting a violent affection of the brain take place, so similar to those which are known to be produced by a determination of blood towards the head, and inflammatory action in the brain itself, that it is to be feared cases of this description have too often been treated by depletion. The symptoms are vertigo, and headache, both of which are increased by the patient raising her head, by noise, or by any one walking through the room. Every time the patient makes any attempt to raise the head, syncope is threatened; there is a constant singing in the ears; the pulse is generally weak and compressible, quick, and in many cases exceedingly irritable, so much so as sometimes to appear pretty strong and wiry for a few minutes; which I have no doubt often imposes a belief that inflammatory action is going on, when really the brain is suffering from the want of a proper quantity of blood, as well as from deficiency of impulse.

Causes of Menorrhagia.—This disease may depend upon general or local plethora; upon general debility; upon exces-

sive leucorrhœal discharge and frequent abortion, which probably produce uterine debility; and upon inflammatory action, perhaps of a sub-acute nature, of the lining membrane of the uterus, together with that of its follicular structure, as well as ulceration at the os uteri. Menorrhagia has also been attributed to constipation, and excessive venereal indulgence; but these can only be regarded as occasional exciting causes in persons strongly predisposed to the disease. Prolapsus and polypus uteri, together with scirrhous and cancerous affections, and diseases of the ovaries, also occasionally give rise to menorrhagia.

Treatment of Menorrhagia.—From the facts above stated respecting the various causes of the disease, the necessity of an examination *per vaginam* will be evident; but in the case of an unmarried woman, it is only to be had recourse to when the disease resists the effects of ordinary treatment. The management of a patient during an attack of hemorrhage is simple, and will in general be successful in restraining the discharge, if it does not depend upon extensive organic disease; but even then it will be often serviceable. In every case, the patient must be kept quiet in bed, without being overloaded with bedclothes; but at the same time a comfortable degree of heat is to be preserved, otherwise bad consequences will be produced. The discharge has been rather increased, by the surface of the body being kept so cold as to occasion shivering, or even chilliness.

In full plethoric constitutions, if there be no organic disease, and if the pulse be full and strong, venæsection will sometimes check the discharge instantly, and is employed upon the same principles as in epistaxis, hæmoptysis, &c.—viz. altering the determination of blood, and reducing the impetus of the circulation. The beneficial effects of leeching have surprised me much in several cases of menorrhagia, even when the discharge was complicated with extensive disorganization. I was first induced to apply leeches, in order to relieve uterine pain and irritation, exciting a determination of blood to the parts, and keeping up the hæmorrhage, and have since had recourse to this practice with much success in cases where venæsection was altogether inadmissible. On several occasions, the hæmor-

rhage ceased almost instantaneously after the leeches had fastened, and before they could have abstracted a desert-spoonful of blood. In plethoric constitutions, the diet should be scanty, and not very nourishing, and the bowels should be kept open, by means of gentle unirritating laxatives.

When menorrhagia occurs in weak, debilitated habits, or when the discharge is continued so long as to produce debility, the patient's strength must be supported by small quantities of nourishment given at short intervals, together with wine or brandy, notwithstanding the supervention of the giddiness, and other symptoms which generally indicate a severe cerebral disease. Rest in the horizontal posture with the head and shoulders low, and the most perfect state of quietness, are to be insisted on: and as the loss of every drop of blood is felt in the reduced state of the system, means must be instantly taken to put a stop to further discharge. This is best effected by the exhibition of the acetate of lead in the form of pills, each containing from two to five grains, combined with a third or fourth of a grain of opium, of which one or two may be given every second, fourth, or sixth hour, as the urgency of the case may demand. As to its action I know nothing, and practical men of the present day care little about mere theories; but I have alluded to the subject, in order to speak of one theoretical objection that has been made to the practice. It is asked, if you were to cut your finger, would you think of trying to restrain the hæmorrhage, by taking acetate of lead or any other astringent? The answer is—certainly not, as there is a more easy and speedy method of doing so; but as we cannot apply a tight bandage round the uterus, or secure its vessels by ligature, we are obliged to have recourse to the other means, which has been suggested by analogy, and the success of which has been proved in actual practice. I subjoin the following short history of a case of menorrhagia, the most threatening and the most hopeless that ever fell within my observation, which was successfully treated by the acetate of lead:—A lady, aged 47, the mother of a large family, of very delicate constitution, who had been always liable to profuse and frequent menstruation after fatigue, any unusual bodily exertion, the application of cold, &c. was seized during the

autumn of 1829 with profuse menorrhagia, which returned from time to time for six or seven months, each attack leaving her more and more debilitated and depressed, till, at length, the discharge never left her, and no remedy had any influence in controuling it. At last she was told, that no medicine taken internally could have any effect, and that her only chance depended upon keeping quiet, and throwing into the passages a solution of the sulphate of alumina, which was tried, but without effect; and, indeed, she felt that she could not bear the fatigue attending the operation. At this juncture, her relations sent for me, when she was in the following condition. The discharge still gushed from her, whenever she was moved for any necessary purpose; she was more exsanguined than any person I had ever before seen; the surface of her body was the exact colour of death; and she had the hippocratic countenance. Her pulse was weak, small, and compressible, and beat about 100. She was perfectly sensible, but was affected with giddiness, headache, singing in the ears, a feeling of sinking, and she could scarcely speak without swooning. She had been for some time almost a stranger to sleep, and when she did slumber for a few minutes, she invariably awoke in terror and great agitation. A bowel complaint had lately supervened, which added to her distress, and increased her weakness, and for some days there were great irritability of stomach and vomiting, particularly when attacked with increased giddiness.

The treatment was immediately changed; warmth was applied, and other means were taken to restore and support the heat of the body; the bolster and pillows were withdrawn so as to lower the head, and 5 grains of the acetate of lead, with $\frac{1}{2}$ a grain of opium, were ordered to be exhibited every third hour till she had taken the fourth dose. One person only was allowed to be in the room, and was desired to give her small quantities of brandy in some nourishing vehicle at short intervals if awake, but on no account was she to be disturbed, at least for several hours. My first visit was made in the evening, when the pills were ordered; and calling again at a late hour, she was quiet, composed, and full of hope, as there had

been scarcely any discharge for two hours. She had just taken a second dose.

Next morning I found that my patient had enjoyed several hours of refreshing sleep,—that the restlessness had considerably subsided,—and that the discharge was quite suppressed. The other symptoms were much the same, and I was told that early in the morning, she had had a violent attack of vomiting with syncope, which threatened the extinction of life, but which went off after taking some additional nourishment, as soon as her stomach could be brought to bear it, and by the exhibition of powerful stimulants. She expressed herself in strong terms respecting the happy change effected in such a short space of time upon both body and mind, and her confidence of ultimate recovery. The effort to speak nearly produced syncope, and occasioned considerable irritation of stomach, and that condition which in Scotland is termed "dry bocking."* The nourishment and stimulants were ordered to be continued at short intervals, and pills with 2 grains of the acetate of lead and $\frac{1}{3}$ of a grain of opium were prescribed, with intervals of six hours instead of three.

At the evening visit, she was much in the same state, only that she laboured under a little agitation, in consequence of a return of the discharge on two occasions upon making some exertion; I found, however, that it was very small in quantity, and ordered the larger doses of the acetate of lead and opium to be given twice during the night, with an interval of four hours, and afterwards to recur to the use of the two-grain pills. She was persuaded to allow herself to be turned upon her right side, in which position she was supported and propped up by means of pillows, and a very small pillow was now placed under the head. From this change of posture she experienced great comfort, and on my visit next day I was told that she had slept soundly the whole night, waking only now and then, when she got nourishment,—that she had a return of syncope and vomiting early in the morning, but neither

* Which term means continued retching without discharging any thing from the stomach; the pain and sinking effect of which are known to every one who has suffered long from sea-sickness when the stomach was empty.

were so violent as formerly. She could now make use of slight exertion, and speak without the same bad consequences as those above described; the singing in her ears still existed, but was not so noisy and troublesome: still, however, she could not raise her head from the pillow without increasing it, producing giddiness and a tendency to faint. It was now time to obtain passage from her bowels, although there was some risk of producing a return of the flooding. A tea-spoonful of castor oil was exhibited, by which the bowels were moved, but, as was apprehended, there was some hæmorrhage at the time, though it did not alarm the patient much, as she was prepared to expect it.

In the evening she felt a little better, and had passed the day without any additional hæmorrhage, having taken only one of the smaller pills. She was now able to turn herself upon her side, and back again at pleasure, but still required the support of pillows. On taking my leave, I gave her one of the larger doses, and desired that she was to take nothing during the night, except nourishment, with small quantities of brandy; this was found to agree with her better than wine, which became acid in her stomach.

On the following morning, I found that she had slept well during the night; she looked and felt better; her pulse, for the first time, felt stronger and slower; but she complained of pretty constant nausea, and oppression at the præcordia. This last I thought might be attributed to the action of the lead, and it was therefore discontinued in the larger quantities, indeed only two of the smaller pills were subsequently given. By good nursing, and attention to the proper regulation of the diet and stimulants, this lady made a perfect recovery, notwithstanding one or two subsequent attacks of bowel complaint, which she experienced during her convalescence, and which threw her back considerably. Five years have since elapsed. She has menstruated regularly in proper quantity, there has been no threatening of a return of the hæmorrhage, and her health is good.

Opium is to be used in doses of one, two, or three grains according to circumstances in cases of menorrhagia, where the discharge is kept up by general or local irritation. Its bene-

ficial effects will be satisfactorily seen by the perusal of the following case.—A lady about the period of the "change of life" was seized with menorrhagia. She had the best advice that could be obtained, and had taken every remedy which had ever been recommended for the suppression of uterine hæmorrhage, but without effect. The passages were stuffed with soft linen in vain, the discharge returned as soon as it was withdrawn; she became exsanguined, and seeing no hope of recovery, was in a state of great despondency. The sedative solution of opium was subsequently given. She required only two or three doses, when the discharge ceased, and she ultimately recovered.

Opium is almost indispensible when the system is very much reduced by hæmorrhage, from whatever part of the body the blood may have issued; it allays that peculiar irritability and restlessness,—prevents irregular determinations of blood, which are always most dangerous in this state of the system, and to which there is a strong tendency,—and lastly, produces quiet refreshing sleep. When the system is fairly brought under the influence of the drug, the strength is no longer exhausted by continual efforts to vomit, and by unceasing jactitation; it sends the whole system to sleep, if I may be allowed the liberty of using such an expression, and enables it to live on a smaller scale of vitality, which in the meantime is enlarged by the judicious and frequent introduction of small quantities of food into the stomach to recruit the strength. Taking this view of the action of opium in such cases, we are enabled to account for the loose expressions used in books respecting it. For instance, Mr Burns says: "The strength must be supported by liberal doses of opium;" and it will be found that this gentleman and others also speak of a considerable dose of this drug as a stimulant.

Practitioners are sometimes not sent for till the symptoms of debility are extreme. Not a moment should be lost in these cases in plugging the passages, either with pieces of soft sponge, or a long stripe of old linen or cotton; but our dependence is not to be placed on this alone, it is only done to prevent further loss in the meantime.

Supposing the immediate danger over, and the discharge

checked, the practitioner must consider what line of treatment ought to be pursued in the interval, because it may return again and again, if some effectual means be not taken. The treatment must depend on peculiarity of constitution; plethoric patients are to be treated very differently from those who are feeble and weakly. General blood-letting is only necessary in the former, when it is found desirable to restrain the impetuosity of the circulation instantly; if not, it is best to reduce plethora by a rigidly abstemious diet, and the daily exhibition of saline medicines, containing perhaps a minute proportion of tartrate of antimony, together with a due quantity of exercise in the open air, and avoiding heated rooms, the use of feather beds, and too many bed-clothes.

In debilitated habits, the diet should be nourishing, easy of digestion, and dry; all slops, whether in the shape of soup, jelly, or gruel, are to be abstained from; the extremes of heat and cold are to be avoided, and great attention must be paid to preserve the extremities in a proper degree of temperature. The employment of the shower-bath is very desirable in all cases, except those in which extreme debility has been induced; the water should be used at first tepid, and is afterwards to be gradually brought down to the temperature of the season. Stimulants are serviceable in many cases, and in some are indispensible; tonics may also be administered when necessary.

Astringent injections may be thrown into the passages, and are no doubt often serviceable; but in this country, there is a great reluctance on the part of women to use them, and when used, the operation is so often bungled, that I seldom speak of them to patients affected with menorrhagia, unless considerable relaxation of the parts exists, or the case be complicated with excessive leucorrhœal discharge. Their employment in extreme cases is inadmissible, from the fatigue occasioned by the operation.

Cessation of the Menses.

When women arrive at that period of life when the menses should cease, the discharge generally becomes irregular, sometimes obstructed for a time and again returning. Nausea and

vomiting, particularly in the morning, swelling of the abdomen, and tenderness of the breasts, occasionally take place; which symptoms sometimes induce a belief that women are pregnant, when in fact their constitutions are undergoing a natural change. Occasionally there are considerable uterine pain, with a dragging sensation in the back and groins, some fever, violent headache, with a full strong pulse, irregular state of bowels, loaded tongue, thirst, and other symptoms of deranged digestion, and occasionally active hæmorrhage from the uterus. These circumstances, particularly that last mentioned, frequently induce a belief of cancer, when it does not exist. It is, however, an undoubted fact, that scirrhus both of the mammæ and uterus frequently occurs about the termination of the menstrual life; and, indeed, if the patient have any predisposition to organic disease, it becomes lighted up, and the affection then generally runs a rapid course. The belief is so general as to the critical nature of the cessation, and the dangers which attend this important change in the female constitution, that women usually become apprehensive of themselves, and despond; and, whether they suffer or not, many have recourse to quack medicines, which are constantly advertised, and which they take, to endeavour either to prolong the discharge, or to ward off disease. It cannot be too generally made known, that many females suffer from this imprudent conduct, and create diseases, which in all probability never would have assailed them, had they taken proper medical advice. Dr Denman, one of the wisest and most conscientious men that ever adorned the profession, states, that he "hardly recollects an instance in which such medicines did not do mischief."

It is proper to mention, that many women suffer no particular inconvenience at this period; some enjoy better health than formerly, and become *en bon point*, particularly those who have previously suffered from dysmenorrhœa.

Treatment.—When the symptoms are slight, the treatment is very simple; attention to the diet and bowels, warm clothing, together with proper exercise, being all that is necessary, and are in general sufficient to prevent any organic mischief. If any particular organ shews symptoms of suffering, appropriate

remedies are to be had recourse to; but if there be general constitutional disturbance, or signs of uterine disease, particularly if the pulse be strong and firm, bleeding in moderate quantity will generally do good, and is to be repeated or not according to circumstances. The necessity for it is to be judged of, principally by the appearance of the blood, the state of the pulse, and the constitution of the patient. In cases where general bleeding is either inadmissible, or its effects doubtful, we can have recourse to cupping the lower part of the back, or the application of leeches somewhere in the pelvic region. We must recollect, that when there is a tendency to local disease at the cessation of the menstrual discharge, it is in general of an inflammatory nature; therefore the diet and other treatment must be regulated accordingly. Although it is by no means necessary, and in many cases would be improper, to confine patients to the house, yet they must be careful not to expose themselves to cold and damp, and they must particularly guard against the possibility of cold feet.

CHAP. XIV.

DISEASES OF THE OVARIA.

The Ovaria are subject to several diseases, as dropsy, scirrhus, vascular sarcoma, atrophy, and the formation of fat, hair, teeth, and bone. Of these dropsy is the most frequent, and this article shall be principally devoted to that disease; because it is difficult, if not impossible, to discover the existence of the other morbid alterations before death; and if discovered, no treatment has hitherto been devised which holds out any prospect of success.

Dropsical ovaria differ very much in external appearance, as well as in internal character; sometimes there is one large sac like a bladder, at other times the disease consists of many cysts varying in number and size, very often one within another, like nests of pill-boxes, from the smallness of a pea to such a great size as to contain two quarts of fluid, and even two or three gallons. The cysts are sometimes divided by fleshy or cartilaginous matter, or by indurated cellular substance; and if I know what scirrhous structure is, I have most undoubtedly seen it surrounding some of them. The thickness of the walls of these cysts is various; they are sometimes as thin as a hydatid, but more frequently like the urinary bladder; at other times they are an inch or two in thickness. The contained fluid is sometimes limpid and colourless, and without odour; at others it is viscid, ropy, and dark-coloured, and occasionally has a disagreeable smell. In one instance, it was the colour of port wine, flaky and fetid; in a number of cases which have fallen within my observation, some of the sacs contained a matter so like calf-foot jelly, that it was impossible from the appearance to say it was not that substance;

while in others it was whitish, like honey after exposure to intense cold. Cases have been described, particularly in the Philosophical Transactions, of ovaria filled with hydatids, but I believe the bodies so called have generally no pretensions to the name; no one, as far as I am aware, has ever been able to trace a single vessel on the true hydatid, whereas in the diseased ovaria, the sacs are so very vascular, that without being injected, vessels containing blood may be traced arborescing over them. Some cases are related in the Philosophical Transactions, and there is one in Haller's Works, in which the ovarium and its contents weighed above one hundred pounds;—the largest I have ever seen removed from the body after death, weighed twenty-five pounds, but they are rarely above twelve or thirteen.

These diseases of the ovaria are sometimes slow, at other times quick in their progress; or they may be slow for a number of years, and then, from some slight cause, and often even without any apparent reason, become more active, and destroy the patient's life in a few months, and sometimes even in a few days.

This class of diseases is often complicated with affections of the uterus, such as tubercles, or even scirrhus and cancer: and in one patient whose body I opened, both ovaries were diseased; the one contained fatty matter and hair, the other was in a state of vascular sarcoma, and considerably enlarged; the uterus, more than double its natural size, was also in the state of vascular sarcoma, and there were likewise ulcerations on the lips of the os uteri, as well as within the cervix, but they were not of a carcinomatous character. These ovarian tumours are always covered with the peritoneum, and are often found adhering extensively to the surrounding parts, in consequence of the supervention of inflammation, and I have sometimes seen them adhering at almost every point.

On opening the bodies of individuals, several of them of children, to ascertain the cause of death, some of whom had died of pneumonia, others of hydrocephalus, and many of bowel complaints, I have occasionally observed vesicles, some the size and shape of small grapes, others like large currants, and attached by a long pedicle to the broad ligament in the

neighbourhood of the ovarium. They sometimes existed solitary; at other times two or three might be seen suspended from one broad ligament, of which there are several specimens in my Museum. I recollect having seen several vesicles attached by long and narrow pedicles to the peritoneal coat of the left ovarium in a child between two and three months old, who died from having been accidentally overlaid by its nurse. These vesicles are sometimes very vascular, and when enlarged, I have reason to believe, have been often mistaken for ovarian diseases.

It is impossible to determine the exact time of life at which diseases of the ovaria may commence; but the fact is well ascertained, that they never have been known to create local or constitutional disturbance, or to obtain any great size, till after the twentieth or twenty-first year.

Symptoms of Diseases of the Ovaria.—These diseases are seldom detected, till from their increasing size they press on surrounding parts, or produce peritoneal inflammation, and thus create constitutional symptoms. In some cases, although the enlargement is considerable, the patient may not complain of pain; and, but for the weight of the tumour, and the mechanical pressure upon the bladder and rectum occasionally producing strangury and piles, some women with ovarian disease would suffer very little uneasiness. In other instances, acute pain attends the disease from a very early period, and it is the first circumstance which occasions a suspicion of disease. The pain comes and goes, and affects not only the lower part of the belly, but shoots into the groins, and down the thighs. Frequently it is found, by comparing the appearances discovered on dissection with the history of the case, that the attacks of pain have been owing to peritoneal inflammation, as proved by the existence of adhesions, some of old standing, others bearing the marks of recent formation. The menstrual discharge is rarely suppressed, or otherwise affected than having been sometimes observed to be more profuse than natural, and to take place at shorter intervals. The functions of the stomach are frequently involved, sometimes giving rise to ordinary dyspeptic symptoms, particularly nausea and vomiting, as in the early months of pregnancy. I

have seen the mammæ become enlarged and tender, in proportion as the tumefaction of the abdomen increased; the nipple at the same time having the dark areola round it, which is considered so characteristic of pregnancy. Patients occasionally suffer very much from severe headaches, and violent hysterical symptoms.

If we examine *per vaginam*, the tumour may sometimes be felt between the vagina and rectum, particularly before it becomes very much enlarged; and also when it happens to be lodged in that *cul-de-sac* formed by the peritoneum, as it is reflected from the rectum over the posterior surface of the uterus. In such a case, the *os uteri* will be found tilted forwards close to the symphysis of the pubis, and we shall be liable to mistake the disease for *retroversio uteri;* but, in general, an examination by the rectum will undeceive us. As the tumour enlarges, it will ascend out of the pelvis, perhaps high up into the cavity of the abdomen, occupying its centre, and having a very close resemblance to the gravid uterus; at first, however, it will be felt in one of the iliac regions, about the size of an orange; but if the patient be fat, it may be impossible to discover it even when much larger. I have seen several cases where the tumour nearly filled the cavity of the abdomen, thereby stimulating ascites, with which indeed it is sometimes combined, as in a case recorded in the 8th vol. of the Medical and Physical Journal, in which there was about a gallon and a half of fluid found in the abdomen; both ovaria were enlarged so as to weigh together one hundred and two pounds. With respect to the feeling of fluctuation in these cases, I know nothing in the practice of the profession so difficult to determine. I have seen a solid tumour of the uterus which weighed above fifty pounds, the whole anterior surface of which was attached to the parietes of the abdomen, and notwithstanding which, the feeling of fluctuation during life was thought to be so distinct, that the woman was tapped three times, once by Dr Scott in the presence of Mr Marshall and myself, a second time by Dr Duffin, at the suggestion and in the presence of the late Mr Wishart; and a third and last time the operation was performed, I have the mortification to say, with my own hands in the presence of Dr Christison,

and upon the assurance of the most eminent men in Edinburgh that there must be a fluid somewhere. I remember well borrowing the longest trocar that could be obtained for the purpose, but the operation proved to be as dry a tapping as the others. Some little time after that occurrence, I was asked to see a woman with a large abdomen, who had been previously tapped under the notion that she was affected with ascites; no fluid followed the puncture; some hours afterwards peritoneal inflammation took place, of which she died in a few days. When the pain first came on in the belly, the patient was examining the wound made by the trocar; she accidentally coughed, and a small quantity of matter like jelly was discharged; she then made additional attempts by pressing and coughing to get rid of more, and a considerable quantity was thus evacuated, but without relief. When I saw her she was moribund; and on dissection an ovarian disease with sacs containing a gelatinous matter was found, filling a great part of the abdomen, and extending a little above the umbilicus; the mark of the trocar was observed in the superior part of the tumour, the anterior surface of which was free, but so extensive were the adhesions behind, that it occupied me fully half an hour in dissecting the morbid parts carefully out, during which many large blood-vessels were divided.

Treatment of Ovarian Disease.—In the exercise of our profession, nothing is more disagreeable, and even humiliating, than to be obliged to witness from day to day, for a period of months or years, the sufferings of patients under a disease like this, without being able to do more than to palliate symptoms by means of narcotics. Sometimes we have the additional mortification to find that temporary tranquillity is produced at the expense of increased after-suffering; so that there really is something to tempt an individual, with an enterprising spirit, to the performance even of the horrible operation of opening the abdomen from the ensiform cartilage to the pubis, in the hope of being able to effect a radical cure. This operation has now been performed several times by Mr Lizars of Edinburgh; and I have no doubt, from his anatomical knowledge and experience in operating, it was done in all the cases with the greatest detexrity, and that no

means were neglected that could ensure success. But mark the results.

In one operation nothing was discovered but flatus in the intestines; and the woman died in forty-eight hours.

In another who was affected with curvature of the spine and lumbar abscess, after the abdomen was laid open, "the uterus and ovaria were found sound and healthy," but it was discovered that the woman was very fat. This woman escaped with her life at the time, although stated to be "often severely tortured with pain," but is still alive.

In a third operation, the subject of which also laboured under ascites, Mr Lizars took away a considerable-sized tumour on the left side, but was forced to leave one on the opposite side untouched, from the extent of its adhesions to surrounding parts, the uterus being also a little enlarged. This woman survived the operation, but died three years afterwards.

In a fourth case, Mr Lizars took away a tumour by separating adhesions between it and the viscera; and the woman died from mortification.

In a fifth case, Mr Lizars cut open the abdomen and found a very large tumour, so completely attached to surrounding viscera, with so many large blood-vessels in the way of completing the operation, that he was forced to abandon it, and to stitch up the abdomen. But in justice to Mr Lizars, I may mention, that he maintained his coolness and self-possession, under circumstances which made the undaunted heart of the late Dr Dease shrink within him; and it may be mentioned, that he was one of the best and most successful operators that the British army ever had to boast of. This woman survived the operation, and is still living.

In a sixth case, upon which Mr Lizars operated at Dumfries, he cut away a tumour projecting from the fundus of the uterus, which was thought to be an ovarium, but the woman died in a few days from inflammation, when the ovaria were found quite snug and sound in their proper situation.

After giving this simple statement, I shall content myself with laying before young practitioners the reasons why I consider this operation unadviseable.

1. It is difficult to tell whether there be a tumour or not in the abdomen; and it will be remarked, that, in two out of six of Mr Lizars' cases, no disease was found to account for the tumefaction of the abdomen.

2. If there be a tumour, it is impossible to determine whether it is of the uterus, ovaria, or some other part. Not long ago, one of my pupils attended a woman most assiduously during a whole winter, who had an enlarged abdomen, and I had no doubt, after making the necessary examinations, that the great enlargement was produced by ovarian disease. Externally, there was felt a large, hard tumour on the right side of the abdomen, as if it had risen out of the pelvis, and from feeling the os uteri tilted up towards the right side of the pelvis, it appeared still more certain that the disease was ovarian. It was understood that many other medical men had pronounced a similar opinion, and that an operation had been proposed to her, which she was averse to, but resolved to abide by my opinion, which was frankly given, that she ought not to submit to it. Besides the uncertainty of the operation itself, and the dangers which necessarily accompanied and followed it, she was affected with one of the worst forms of epilepsy that had ever come under my observation. The woman followed my advice, but in the course of six months expired during an epileptic fit. On dissection the uterus and ovaries were found quite healthy, but the liver was enormously enlarged, and so elongated that it extended into the cavity of the pelvis: it was this organ which had occasioned the tumefaction of the abdomen.

Some years ago I attended a very amiable and interesting young lady along with Dr John Gairdner of this city, who laboured under a very complicated set of disorders, which baffled our skill to cure, and we advised her to go to London, where she had a brother a medical man. One celebrated individual, who has figured in ovarian operations, most unhesitatingly pronounced her complaints to arise from disease of the ovarium, which Dr Gairdner and I were persuaded did not exist. Sometime afterwards she died at Newcastle, and on opening the body, the uterus and ovaries were found perfectly

sound, but extensive disease was discovered in the stomach, colon, liver, and kidneys.

3. It is impossible to tell whether a diseased ovarium is attached to surrounding parts, which must always be an insurmountable objection to an operation; for should there be extensive adhesions which require to be separated during the operation, such a separation, whether affected by the knife or by the fingers, must seal the fate of ninety-nine women out of the hundred. Even in the dead body, I have been occupied more than half an hour in separating an ovarian tumour from its adhesions, and removing it from the body, which was not effected without wounding many large blood-vessels; and the following description is given by Mr Lizars of one of his own operations:—After opening the abdomen from the sternum to the pubis, "a multiplicity of convoluted vessels presented themselves, of various magnitude, from the thickness of a finger to that of a crow's quill. At first I thought them the intestines, for they appeared extremely fleshy; then I imagined them the blood-vessels of a placenta, which they still more resembled; indeed, such was their resemblance to the vessels of that organ, that the same idea struck one and all of the gentlemen present. On minute examination, however, they were found to be the blood-vessels of the omentum majus, enormously enlarged, running on the surface and into the substance of the tumour, which appeared an enlarged ovarium. Finding that it was impracticable either to dissect these vessels from the surface of the tumour, or to secure them, in consequence of their great number, I abandoned the idea of extirpating the mass, in which decision I was supported by the gentlemen present; I therefore punctured with a large trocar and canula the centre of the tumour, but nothing flowed; I next made a small but deep incision with a scalpel, when the tumour appeared solid and cartilaginous, and a vessel bled a little; I lastly punctured the lower part of the tumour, being anxious to reduce its bulk, but only pure blood flowed. The lips of the wound were now approximated and stitched, adhesive straps applied, compresses of lint and linen, with a shawl as a binder, and the patient was carried to bed. This operation was performed in the presence of James Dease, Esq.

Surgeon to the Forces; Drs Poole, ———, and Millar; Messrs. James Scott, George White, and many other surgeons and students."

In Mr Lizars' case of Isabella C——, he succeeded in insulating a large mass weighing upwards of seven pounds, which he "found adhering so strongly to the parietes of the abdomen, to the colon, and to the brim of the pelvis, that I despaired (says he,) of being able to detach it; however, by dissecting at one time, and tearing cautiously with the fingers at another, I succeeded," &c. She died at 7 o'clock in the evening of the second day.

4. It ought to be considered, whether the dangers arising from the operation, are not greater than from allowing the disease to remain undisturbed. In the first place, we have to consider the chance of the patient dying immediately from the shock, or from hæmorrhage, or subsequently from inflammation, after she has undergone the horrid torture occasioned by an incision from the sternum to the pubis, independently of that produced by exposing and handling the viscera, and cutting away the tumour, not to speak of the difficulty of restraining the protrusion of the intestines, both during the performance of, and subsequent to the operation. "I shall never forget (says Mr Lizars,) the countenances of my pupils, and the *younger* members of the profession, when the intestines protruded, and baffled all the efforts of Dr ——— and other gentlemen to confine them. The diaphragm acted with great vigour, and with powerful impetuosity."

To give my opinion in the shortest possible manner, I shall simply state, that I regard a recovery after such an operation as almost miraculous, and to be considered more in the light of an escape than a recovery to be expected, particularly if performed with an external incision through the parietes of the abdomen and peritoneum, from the ensiform cartilage down to the pubis.

There is only one case, in which an operation should be attempted,—when we are consulted early, and find a tumour just above the brim of the pelvis, which is moveable, and falls from side to side, when the patient changes her posture,—when it is ascertained after careful examination, both by the

vagina and the rectum, that the uterus is in all probability sound,—when the patient has as yet had no pain or constitutional symptoms, indicating the existence of peritoneal inflammation, which may lead us to believe there are, as yet, no adhesions between the tumour and surrounding parts,—and when the patient appears to have great courage and stamina, and as many lives as cats are figuratively represented to possess. In such a case I would recommend an operation, with an external incision barely large enough to admit the passage of a small hand to examine the disease, and bring the surface of the tumour to the opening, that its size may be diminished by tapping if necessary, when the sac can be drawn out by degrees, very much in the manner represented to have been pursued by Dr Macdowal of Kentucky.

It is difficult to say what line of treatment ought to be adopted in diseases of the ovaria; but I shall state that which I have found to be most beneficial in these unfortunate cases. It is indispensably necessary to attend to the state of the bladder, by taking care that it be not over-distended, and that any irritation which may occasionally arise in this organ be mitigated by camphor and hyosciamus, together with fomentations applied to the lower part of the abdomen; the bowels are to be daily evacuated if necessary by mild laxatives, assisted by tepid water injections. Considerable relief is often experienced from the repeated application of leeches, and contra-irritants, which operate not only by mitigating pain, but by stopping the advancement of peritoneal inflammation, which is so apt to occur, and also by arresting the progress of the diseased growth. Occasional opiates are also serviceable. The use of diuretics cannot, I think, be upheld in the true ovarian disease, as they can have no effect either in promoting absorption, or preventing a further collection of fluid in the sacs; neither can I fancy that iodine in any of its forms can have the effect of causing absorption of such diseased masses as I have seen the ovaria to consist.

The next important question comes to be,—Is the operation of tapping these tumours likely to prolong life? Experience obliges me to say, that in general it is not, although there may be exceptions to this. Tapping in such cases is an un-

certain operation, from the obscurity which generally hangs over them; and it may prove the first exciting cause of peritoneal inflammation, which may quickly produce death, or leave extensive adhesions between the tumour and surrounding parts. I have already shewn, by the description of two cases in which tapping was performed, how uncertain are the indications for the operation; and I know of one case, where the operation of *paracentesis abdominis* was performed, under the idea of the existence of ascites, when there was actually no fluid. Feculent matter came through the canula, instead of the watery effusion; the woman soon expired, and dissection shewed that the trocar had penetrated the colon. But independent of these objections, which shew at least that this operation, simple and slight as it appears to be, should not be recklessly performed, diseased ovaria are generally composed of such a number of cysts, that when a puncture is made, either no fluid at all, or only a small quantity, may be discharged, being the contents of one inconsiderable-sized cyst; besides, I have found that the fluid is quickly secreted, and that the more frequently the operation is performed, the more frequently does it require to be repeated. Thus it will be seen in a case recorded at page 123. of the Medical Communications, 2d vol. that a patient was tapped *forty-nine times* from first to last, and *two thousand seven hundred and eighty-six pints* of fluid were drawn off; and it is stated, that the secretion went on so rapidly at last, that by calculation, three pints and three ounces were secreted every twenty-four hours. Another case is recorded in the 74th vol. of the Philosophical Transactions, in which the patient was tapped *eighty times*, and the immense quantity of *thirteen hogsheads* of fluid were evacuated. Many other similar cases are to be found both in the English and Foreign Transactions, which incline me to agree with the opinion of the late Dr Denman,—that the operation of tapping should at least be delayed as long as possible, partly from its being an uncertain operation, but principally because it is quickly followed by another accumulation, so that in the course of a few days the patient is in as bad a state as ever.

I had nearly neglected to mention another proposal which

was formerly made and carried into execution, with the view of effecting a radical cure; it consisted in laying open the abdomen, and making an incision into the tumour, to evacuate the matter, and afterwards throwing in a stimulating injection, to excite inflammation in the sides of the sac, in order to produce permanent adhesion, or introducing a tent to keep the wound open until the fluid cease to be discharged. A case is related by Dr Houston, in the Philosophical Transactions, in which he made an incision two inches long into the ovarium, and evacuated a great quantity of jelly-like matter and hydatids; the wound was afterwards kept open, and the patient is represented to have been cured, although the disease had existed for thirteen years, and occasioned violent pains. In the Memoirs of the Academy of Surgery, a case is to be found of a woman who was tapped for a large tumour in the belly, but nothing came away; an incision was then made into the tumour through the parietes of the abdomen, and thirty-five pounds of gelatinous matter were extracted,—next day fifteen pounds more were discharged, but vomiting and fever took place, and she died on the thirteenth day. I may add, that Dr Denman notices the case of a patient who died on the sixth day after the sac was injected.

PART IX.

GOUT.—RHEUMATISM.—SCROFULA.—DROPSIES.

CHAP. I.

GOUT.

This disease is sometimes known by the terms Podagra and Arthritis. Dr Cullen has divided it into four varieties :—

" 1*st*, *Podagra Regularis*, with decided inflammation of the joints continuing for several days, and receding gradually, with swelling, itching, and desquamation of the part."

" 2*d*, *Podagra Atonica*, with debility of the stomach, or some other internal part, and either without the expected or usual inflammation of the joints, or with slight and flying pains in them ; with dyspepsia or other symptoms of debility often quickly alternating."

" 3*d*, *Podagra Retrograda*, with inflammation of the joints, receding suddenly, and followed immediately by debility of the stomach, or of some other internal part."

" 4*th*, *Podagra Aberrans*, with inflammation of some internal part, preceded or not by inflammation of the joints ; if so preceded, the external inflammation quickly disappears."

Dr Mason Good has enumerated three varieties of gout :—

" 1*st*, Regular fit of gout," which differs in nothing from Cullen's first variety.

" 2*d*, Disguised, lurking, atonic gout," which is nothing more than Cullen's second variety.

" 3*d*, Complicated gout," in which he includes Cullen's third and fourth varieties, under the terms " retrograde, recedent, misplaced gout."

Dr Scudamore, who has written a large volume on gout,

urges most potent objections, both nosological and practical, to these divisions, and the definitions attached to them. He divides gout into three varieties, viz. acute, chronic, and retrocedent; and the following are his definitions :—

" Acute gout.—Inflammation and pain of the articular, tendinous, or bursal structure, usually attacking one part only at the same time; but in succession of attack, affecting different parts together; with preternatural fulness of the adjacent veins, and in certain situations, with œdematous swelling of the integuments, occurring in twenty-four or forty-eight hours from the invasion of the fit; vivid redness of surface, which is sometimes shining; entire disability of the affected part, with peculiar sensations of burning, throbbing, cutting and pricking, and weight; the action sometimes readily changing situations spontaneously or from slight causes; terminating almost invariably without suppuration, and usually with some critical indications of the event."

" Chronic gout.—Inflammation and pain more slight, irregular, and wandering, than in the acute; faint redness of surface; much permanent distention of parts, or continued œdema, and impaired moving power; without critical indications of its terminating; commonly associated with a morbid state of the digestive organs, a languid or oppressed circulation, and much nervous irritation in the system."

" Retrocedent gout.—Metastasis, or transference of the gouty action in the paroxysm, from the external part to some internal organ."

It may appear a strange confession to come from me as a Lecturer on the Practice of Physic, that I never read Dr Scudamore's Treatise on Gout, till actually engaged in writing this article, although I have long known that such a work existed, and that its author had attained a high degree of eminence in practice; but I have several reasons in excuse to plead.

It is impossible for a person engaged in practice, and at the same time most anxiously employed in investigating the nature and seats of disease, to peruse every medical work which now-a-days comes from the press. With respect to what had been previously written on gout, I had derived nothing but vexation

and disappointed from the perusal. Very early in life, I had frequent opportunities of witnessing the phenomena, progress, and termination of gout; and during an attendance on a near and dear relative in the course of long paroxysms of this disease, I was compelled to read aloud, for his satisfaction and my own improvement, all the published works of the day. At last, when it was pronounced by a celebrated writer, that, after all, the only thing to be done for gout, was "*patience and flannel*," my patient became almost frantic with rage, and declared, that although he was not a physician, he could write more sensibly upon the subject himself; and concluded by desiring me to study nature, and not books, if I wished to obtain a knowledge of the disease. I never forgot the advice, and from that moment I began to make a book by storing facts in my own mind.

When lecturing on gout, I have contented myself by giving a simple statement of all the pathological facts which I had observed, and by commenting on the statements made by Dr Mason Good in his chapter on this subject; but after seeing Dr Scudamore's treatise, it behoves me to state, that I have never been more gratified and instructed from the perusal of any medical work; and as the opinions which I entertain are similar in many respects to those of Dr Scudamore, I shall avail myself of many of his facts and observations, because they are drawn from a more enlarged experience.

Phenomena of a Paroxysm of Regular Gout.

" The gout, (says Cullen, Par. 492.) not only as it occurs in different persons, but even as it occurs in the same person at different times, is a disease of such various appearance, that it is difficult to render the history of it complete and exact, or to give a character of it that will universally apply."

The first attack usually occurs in one of the feet, generally in the ball of the great toe, which has more or less of the appearance described by Dr Scudamore in his definition of acute gout, and which there is no necessity for repeating in this place. The patient often attributes the sensations he experiences to a twist he thinks he has given his foot, or to the effects of a tight boot or shoe. Dr Scudamore says, at page

17.: "On some occasions, and especially in the first fit, the immediate invasion of the disease is not preceded by any warning." The reason of this I believe is, that the warning has not been taken, as I have never yet seen a case which was not preceded by a distinct announcement of gastro-intestinal irritation. The tongue has always a morbid appearance, being loaded, or having a fiery red colour, or being shrunk and blanched; the bowels are irregular; the patient feels loaded and oppressed after eating; there is acidity of stomach and heartburn, which is sometimes excruciating, accompanied by occasional vomiting of a very acid matter. The epigastric region cannot bear pressure; the urine is scanty, high-coloured, and becomes thick and muddy after standing. The patient is often observed to be depressed in spirits and drowsy, although he cannot sleep, and the nights are passed with great restlessness. The limbs are affected with numbness, weakness, and a pricking tingling sensation, with cramps and darting pains along the course of the nerves, more particularly in the extremity in which the disease is afterwards to be fixed. The extremities at times can scarcely be preserved in the natural degree of heat; at others, they become burning hot, particularly the soles of the feet, aud the balls of the great toes, and these states alternate. There are sometimes general rigors, or rather fits of chilliness, followed by feverishness, during which the face becomes flushed, and there is sometimes headache.

These precursory symptoms, and others which might be mentioned, vary much in different individuals, depending upon idiosyncrasy. I have never known a person subject to gout, who was not warned of an approaching paroxysm, by some sensation or symptom which might be said to be almost peculiar to himself. Thus, one will have violent fits of sneezing;—a second, a feeling of heat and pain in his eyes, with a diminution of the lacrymal secretion;—a third will perceive heat, redness, and swelling at the point of the nose;—a fourth will have a bronchial affection, with cough, and slight expectoration;—a fifth will be aware of the approaching attack, by a peculiar appearance of the tongue, a feeling of coldness, heat, or acidity in the stomach, perhaps an unusual craving for some

particular kind of food;—a sixth is made apprehensive by the occurrence of diarrhœa, by unusual sluggishness of the bowels, or flatulent distention of the abdomen;—a seventh will have great irritation about the neck of the bladder, scalding in the urethra, and perhaps discharge of matter, sometimes passing a little blood, and having slight difficulty in making water;—an eighth will experience an unusual lassitude, inability to apply his mind to any subject, and irritability of temper, at times giving way to sudden bursts of passion, or merely to a feeling of peevishness; and a ninth will suffer from palpitation, or some other symptom sufficiently striking to arrest his attention. Those who have experienced a few attacks of gout, are hence able to take steps which will sometimes either postpone the paroxysm, or mitigate its violence.

At length the paroxysm fairly sets in with the following local symptoms;—pain, which soon becomes burning and throbbing, with occasional stounds from the affected part up the limb, the return of which the patient constantly dreads; some degree of swelling, which, as well as the pain, increases rapidly; so that, in a few hours, the parts are much swollen, red, with considerable distention of the neighbouring superficial veins. Even from the first, a great part of the swelling is owing to œdema, for the parts will be found early in the disease to pit slightly on pressure. The redness soon becomes of a bright scarlet hue, and the throbbing, shooting pains, heat, and inability to move the limb, rapidly increase, so as to be at their acme in a first fit, perhaps in the course of twenty-four hours.

First attacks are in general, although not always, slight, the patient being able through the day to bear his sufferings at least with composure. At night the pain and general fever increase, but decline again towards morning, with a slight relieving perspiration, at which time perhaps the patient enjoys a little slumber.

The constitutional symptoms which occur during the paroxysm, vary not only according to the severity of the local inflammation and pain, but also to the state of health in which the patient may happen to be at the time. If there be any organic affection, of course the symptoms will suffer modifi-

cation, which, however, falls to be considered under the head of Retrocedent Gout. The first constitutional symptom which naturally attracts attention is fever, and in all old-standing cases of gout, the disease makes its approach with chilliness, and cold extremities, succeeded by some degree of fever, and its usual attendants,—restlessness, thirst, want of appetite, and præcordial oppression. The pulse varies; it is generally full and hard, and indicates an inflammatory and plethoric state of the system, unless the patient be reduced in health and strength by the long continuance of previous organic disease or intemperate habits. Even in slight cases, the digestive organs shew much functional suffering; besides want of appetite and thirst, the patient experiences abdominal pains, which are owing, perhaps, in nine cases out of ten, either to some indigestible matter lodged in the stomach and bowels, or to their flatulent distention, but which are too often attributed to cramp and spasm, and opiates or stimulants are exhibited. In many cases burning pain, or merely a sensation of heat, is experienced in the epigastric region, where pressure cannot be well borne, accompanied by sour eructations, or vomiting of a very acid and acrid matter, which produces a sense of heat and rawness in the œsophagus. This matter sometimes looks as if mixed with bile, of a green colour; at others, it is limpid and colourless. The tongue is furred, red round the edges; or it is clean, but of a fiery red colour, with the papillæ much raised; but a furred tongue is the most common appearance, being either white, or having a yellowish tinge. The bowels are sometimes affected with looseness, but far more frequently they are torpid, and the evacuations are fetid, and look very vitiated and unnatural, being frequently mixed with mucus, which sometimes appears in shreds. The urine is scanty, high-coloured, producing irritation in the bladder and heat in the urethra, with their attendants, frequent desire to make water, and some degree of difficulty in doing so. On standing, a pink or brick-dust sediment takes place in every case during the inflammatory stage. The urine is often mixed with mucus, and is represented to be of greater specific gravity than when in a healthy condition. As the inflammatory symptoms subside, the urine loses its high colour, and by degrees ceases to deposita late-

ritious sediment; but in its place there is a whitish deposit, as if it were mixed with a small quantity of chalk or magnesia. Dr Scudamore thinks that the brick-dust sediment depends on the functions of the liver; and there can be no doubt that it has a share in the cause, but it is quite as likely to depend upon functional derangement of other organs, particularly of the stomach.

The nervous system shews marked evidence of derangement, as is evinced by irritability of temper, general sensibility and restlessness, the intensity of the pain, the darting cramps extending along the course of the nerves, even throwing the muscles occasionally into violent spasmodic contractions, as well as by the sudden and instantaneous translation of the inflammation from one limb to another.

In the course of two or three days, the symptoms are found to have undergone considerable mitigation. The patient then complains of weakness in the limb, with perhaps slight tenderness of the part. It rarely happens, when gout may be said to be in its infancy, that the inflammation, as it declines in one foot, appears in the other, or in any other joint, which circumstance is so frequently observed in the old-standing cases.

The œdematous state of the part continues for some days after the subsidence of the inflammation; and occasionally desquamation of the cuticle takes place, with much temporary itching.

In one hundred and seven cases of the first attack of gout, Dr Scudamore has given the following comparative statement, shewing the parts most liable to be affected:

In 70 cases, the inflammation was in one foot only.
In 8, the great toe of each foot.
In 2, the toe and instep.
In 2, the outer side of one foot.
In 1, the heel of each foot, the hand, and elbow.
In 3, one ancle.
In 1, each ancle.
In 1, the ancle of one foot, and toe of the other.
In 3, the ancle and instep of one foot.
In 1, the toe, instep, and ancle of one foot.

In 2, instep of one foot.

In 1, instep of each foot.

In 1, one instep first, afterwards each knee, wrist, elbow, and shoulder.

In 1, heel of one foot.

In 1, heel of each foot.

In 1, each foot and hand.

In 1, right thumb, and afterwards in the toe.

In 1, right knee.

In 2, left knee.

In 1, hand and wrist.

In 1, back of one hand.

In 1, back of each hand.

In 2, one wrist.

In the early fits of gout, the health improves soon after the local symptoms decline, and I have heard many people declare they felt themselves better and more vigorous than they had done for weeks and even months before.

The gout may return annually, perhaps at shorter intervals; on many occasions, however, there is no threatening of a paroxysm for several years; but as the disease goes on, the attacks are generally more severe, the fits longer and the intervals shorter, the parts affected more numerous, till at last the constitution becomes broken down. Dr Scudamore has justly observed, that the frequency of a return of gout is in proportion to the constitutional tendency, and to the unfavourable mode of life of the individual.

In subsequent attacks, the constitutional and local symptoms are similar in character to those already described, but are more marked in point of severity, of longer duration, and the constitutional nature of the disease becomes more and more manifest. The precursory symptoms are also rendered more apparent by becoming more severe with each returning fit. But we are assured by Dr Scudamore, that even confirmed gouty subjects are sometimes attacked at the very moment when they most congratulate themselves on the possession of health and strength; and he has seen some fits thus sudden and unexpected, in the sequel very tedious and severe.

There is no disease, except perhaps rheumatism, in which such a complete appearance of metastasis, or translation of the inflammation, takes place as in gout, the disease having been frequently observed to originate in the toe of one foot, at the very time it disappeared in the other. There can be no doubt of the fact, although in many cases I have been able to satisfy myself that the inflammation in both feet had previously co-existed; but when it became more painful, and a greater annoyance in one foot, the attention was attracted from the other. In the same manner, a metastasis sometimes appears to take place from the great toe, or from any other joint, to an internal organ; but this, I am also persuaded, is often a deception, and can be explained in a similar manner.

Phenomena of Chronic Gout.

When the constitution is considerably injured by long-continued indulgence in luxury and bodily inactivity, or is worn down by repeated attacks of acute gout, the disease assumes a less violent, but still more dangerous form, which Dr Scudamore has called "chronic,"—Dr Cullen, "atonic,"—and Dr Mason Good, "disguised, lurking, atonic gout."

This form of the disease is generally a consequence of previous acute attacks. The local inflammation, pain, and redness, are comparatively slight; there is more permanent distention, œdema, and helplessness of the affected limb, than in the acute form; but the conditions of the digestive organs, of the circulating and nervous systems, are more embarrassed and oppressed. The disease is more bearable in this than in the acute form, because the patient does not suffer that extreme agony occasioned by intense local inflammation; but there is nevertheless more danger, from the importance of the parts whose functions are very seriously impeded, which sooner or later terminates in structural lesion; and it is invariably observed that the paroxysms are more frequent and irregular.

According to Dr Scudamore—"The state of the constitution in chronic gout embraces a great variety of symptoms, which are modified by the temperament and habits of the patient; by the situation and degree of local disease; and also by the

seat and nature of the internal visceral derangement. Indeed, so many anomalies so often arise in this impaired state of the health, partly depending on internal causes, and partly on the painful or uneasy state of the affected textures, that probably no description would be adequate to include all these shades of sympathy; and it may be sufficient to delineate a general outline." (P. 327.)

Some patients are severely distressed with dyspeptic symptoms, such as uneasy sensations in the stomach and bowels, nausea, a craving desire for food, oppression, and flatulent distention after every ordinary meal, which are much increased if the stomach be incautiously loaded. Some experience cramps, others heart-burn, and some a peculiar coldness in the stomach, which they compare to that which would be produced if it contained ice. The cramps are owing, I am persuaded, in a great majority of cases, to efforts made by the stomach and bowels to expel crude and indigestible matters, as well as to distention from flatus, and are not commonly, at least, of that mysterious nervous character which is generally imagined. Although the patient's appetite seems natural, yet he is not nourished by his diet, he neither experiences increased strength nor vigour, but, on the contrary, suffers additional constitutional and local irritation, and even feverish action. His mind becomes weak and irritable, often hypochondriacal; he is haunted by imaginary evils during the day, and by disturbed, or even frightful dreams at night; and the sleep is, in general, broken and unrefreshing. Palpitations are common, not only in the region of the heart, but in the course of the abdominal aorta, even when the heart's action is quite tranquil and natural. The body becomes more susceptible to the impressions of atmospherical vicissitudes; the limbs become emaciated and weak, when the abdomen is perhaps growing larger; the bowels are sometimes costive, sometimes loose; the stools always possess an unnatural fetor, sometimes having a white appearance, shewing a diminution of biliary secretion; at other times they are dark-coloured, and very frequently mixed with mucus. I have even seen the mucus tinged with blood, and attended by all the usual symptoms of dysentery. There is considerable

irritation about the rectum, no doubt often produced by the enlarged and painful condition of the hæmorrhoidal veins, which occasionally discharge blood, sometimes in considerable quantity; and many gouty people are so much relieved by periodical hæmorrhage, not only from the anus, but from the nose, that they consider it necessary to health; and I have known several cases in which apoplexy took place, when the natural hæmorrhage ceased to recur. The urine has much the same appearances as in the acute form of the disease. A chronic cough and expectoration are frequently met with, and depend upon the state of the bronchial membrane.

The calcareous depositions which are so frequently found about the smaller joints, and which go under the name of "chalk-stones," are more frequently formed in this species of gout than the acute. The humoural pathologists believed them to consist of indigested gouty matter thrown upon the joints, and changed into their peculiar state of hardness by the heat and pain of the joint, but they are now known to be a compound of uric acid and soda. "These gouty concretions, (says Dr Scudamore) occurred only in a few individuals of particular gouty idiosyncracy, and are found in various situations from within the synovial membrane of the joint, even to the layers of the cutis. I have found them in the living subject, filling the bursæ, and condensed to great hardness; in the sheaths of tendons, feeling almost stony; in the cellular membrane, either in hard or soft lumps; and under the cuticle, pressing for escape. In one gouty person who comes under my frequent observation, the concretions near the surface have caused numerous ulcerations both in the hands and feet, and the chalk-like matter is constantly secreted."

Phenomena of Retrocedent Gout.

It sometimes happens, that, during a fit of gout, the external inflammation suddenly disappears, or, at least, becomes very much mitigated, while the patient is affected with lethargy, stupor, coma, apoplexy; or with severe pain in the head, and other symptoms indicating inflammation, or some other cerebral affection.

At other times, on the recession of the gout, difficulty of

breathing, with tightness in the chest, great oppression at the præcordia, and a sense of suffocation, followed by cough and expectoration, take place; or violent palpitation, pain, and constriction in the region of the heart, accompanied by oppressed breathing, cough, &c. indicating disease of some part or parts of the viscera of the thorax.

In another set of cases, the translation takes place towards the abdomen with symptoms of gastritis, hepatitis, enteritis, peritonitis, or dysentery; and in some cases the urinary organs are involved. Dr Scudamore thinks "the transference is most disposed to affect the stomach or intestines, or both in succession. The symptoms which attack the stomach are exquisite pain and spasm, with vomiting. If the intestines be more distinctly affected, enteritis in its worst form is produced; and vomiting, which is a usual attendant, is more or less urgent, according as the seat of disease is near or distant from the stomach. In either case, the danger is pressing; and unless relief be speedily rendered, death soon closes the scene."

Dr Cullen (Par. 532.) observes, "that the stomach, which has so universal a consent with the rest of the system, is the internal part that is the most frequently, and often very considerably, affected by the gout. The paroxysms of the disease are commonly preceded by an affection of the stomach; many of the exciting causes act first upon the stomach; and the symptoms of the atonic and retrocedent gout are most commonly and chiefly affections of the same organ."

Dr Mason Good, (vol. 2. p. 630, 2d ed.) makes the following observations: "It sometimes happens, however, that while the general constitution of a podagric patient is tolerably sound, one or more of the internal organs form an exception to the general rule, and are less healthy than the rest. And as, upon an excitement of gouty inflammation in a gouty habit, the inflammation seizes ordinarily upon the weakest part of the body, it makes its assault upon such organ rather than upon the hands and feet; or, if it commence in the latter, is readily transferred to it; constituting the third of the varieties before us, and which has usually been called RETROGRADE or MISPLACED GOUT. And if the general system should, at the same

time, be below the ordinary tone of health, when the paroxysm is thus excited by the force of some occasional cause, the organ affected may evince great languor and painful inertness, as in the second variety, rather than acute inflammation, as in the first. The sensation in the stomach, instead of being that of a fiery coal, is that of a cold lump of lead; in the head it changes from maddening pain to oppressive horror, in which the patient suddenly starts from sleep almost as soon as he has begun to doze, from the hideousness of the ideas that rush across the mind, and from the distracting dream.

"The fit is sometimes transferred to the bladder, in which case there is acute pain at the neck of the organ, strangury, and a discharge of thin acrid mucus from the urethra. The rectum has also occasionally been the seat of metastasis, and has evinced various species of affection, as simple vehement pain, spastic constriction, or hæmorrhoidal tumours. When thrown upon the lungs, it *mimics* the symptoms of a peripneumony."

There is a great deal of good sense and sound observation displayed in the above passages, but it is mixed up with some absurdly mysterious expressions, which may throw young practitioners off their guard, and therefore must be noticed. When Dr Mason Good speaks of the second variety of retrograde gout, in which the organ affected is represented to be "*below the ordinary tone of health*, evincing *great languor* and *painful inertness*, instead of *more violent* symptoms, as in the first variety," one accustomed to see much of disease, and to open the bodies of those who have fallen victims to it, would be led to imagine the author was not aware that inflammation may exist in various degrees of intensity; and that, modified by some peculiar, but unknown causes, inflammation of similar intensity and extent will give rise in one subject to violent symptoms, while in another they have such an opposite character, that although the patient is observed to labour under some degree of suffering, yet the symptoms are not so striking as to attract the same degree of attention. These passages would lead one to imagine that the author of this learned and laborious work was not aware that inflammation of different tissues gives rise to a different cast of symptoms

as to violence, which is particularly exemplified in the serous and mucous membranes, which last are so very frequently involved in gout. I must enter a strong protest against the expression used when speaking of retrocedent gout, viz. "When thrown upon the lungs, it MIMICS the symptoms of a peripneumony."

Dr Scudamore states "that Dr Home of Edinburgh, in his lectures, relates the case of a gentleman, who exposed himself to the influence of wet and cold when the gout was slightly present in the feet: and on the same afternoon, enteritis followed, which in twelve hours proved fatal. He also states, that Dr Parry informed him, "that in the same winter he has seen two instances of extravasation in the brain, from the removing of gout in the extremities, by immersing the feet affected in cold water."

Unless from similar rash practice, or from imprudence on the part of the patient, I conceive that such sudden translations of the inflammation, or, what is the same thing, sudden alterations in the balance of the circulation, during the paroxysm of gout, are among the rarest occurrences to be met with in practice, unless indeed there have been previous disease in the organ to which the translation takes place. A person of gouty habit may be seized after exposure to cold and damp, with slight inflammation of the brain, lungs, or of any other organ, when his bowels are constipated and his system plethoric; gouty inflammation of a joint may supervene, and mitigate for a time the internal disorder, the attention of the patient and of the physician being then exclusively attracted to the external inflammation; and subsequently, upon the subsidence of the inflammation in the joint, or from mismanagement, such as plunging the foot into cold water, the internal disease may re-appear, perhaps with increased violence, or, what is all the same, when the patient is weaker, and not so well able to stand the remedies as he would have been a few days previously. Or it happens that an individual may be affected with a permanent organic disease of the heart or lungs, and may be at times seized with gout, when he will be every moment in danger of the inflammation receding from the joint. I once casually met with a gentleman, in many

respects a hypochondriac, and who was so considered, at least according to his own account, by his medical attendant. He had a very foul tongue, and acidity of stomach, which he said had been his constant companion for years; he also added, that he had a tightness about his chest, which was certainly increasing; and that he never had a good night's rest, in consequence of frightful dreams. I satisfied myself from the state of the pulse, and that of the heart's action, that he had enlargement complicated with dilatation of that organ. In the course of a few months afterwards, he was seized with gout, and died during the attack from retrocession; his death was attributed by his medical friends to "spasm of the lungs;" whereas all the symptoms immediately preceding death appeared to accord with the opinion which I had formed to myself. I anxiously looked forward to the examination of the body of this patient, and took an opportunity of urging its propriety, but received the following reply—"What would be the use of opening a man who died of gout?"

In the year 1830, I attended a gentleman, who, after an illness which I knew to proceed from extensive disease of the heart, with which he had been slightly affected for several years, was seized with gout in the lower extremities. The external inflammation was very unsteady in its seat, sometimes affecting one joint, sometimes another; but whenever there was little external inflammation, he became instantly affected with difficulty of breathing, occasioned by bronchitic inflammation, or violent palpitations, with constriction, and sense of suffocation. Twice the translation took place to the brain; on one occasion he became frantic, talked loud, and abused those about him; and on another, he exhibited a strong tendency to coma. At these times relief was produced by the application of leeches, but principally by causing external irritation. At last, after spending a quiet night, with much refreshing sleep, taking nourishment at proper intervals, and when every thing appeared to be going on well, he became affected with difficulty of breathing, and died in a moment. Immediately previous to the fatal event, he expressed his own satisfaction at the relief he had experienced, and the prospect of a speedy recovery. I made every effort to obtain an exa-

mination of the body, but failed, in consequence of a promise he had extorted from his wife; but there could be no doubt that there was hypertrophy with dilatation of the heart, disease of the valves, and that there had been bronchitic inflammation.

Causes of Gout, and Pathological Observations.

Dr Scudamore has written a considerable number of pages on the causes of gout, to which I beg to refer my readers for a great deal of very valuable information, as it would be inconsistent with the plan of this work to enter so much at large into the subject as he has done in his treatise.

The first question that naturally suggests itself is,—Whether or not the disease is hereditary? According to Dr Cullen, it is expressly defined to be—"*Morbus hereditarius, oriens sine causa externa evidente*," &c. Guided by nature instead of books, I have observed that gout is more an acquired than a hereditary disease. Dr Scudamore instituted an investigation to ascertain the fact, and of one hundred and thirteen patients, the number of those in whom the disease was hereditary from

the father, amounted to - - - - -	32
——————— mother, - - - -	9
——————— father and mother, - - -	3

Of those whose grandfather only had gout, the disease

completely hopping over one generation, - - -	6
——————— grandmother only, - - -	1
——————— uncle only, - - - -	3
——————— aunt only, - - - -	1
Gout not known either on the father's or mother's side,	58

From this statement, it appears that the cases of acquired gout, in which no family reference could be traced, were to the rest as fifty-eight to fifty-five; and in the examples contrasted with those *immediately* hereditary, as fifty-eight to forty-four. My own experience corroborates the above statements, but it is generally viewed as a hereditary disease; and this has arisen, I imagine, from the habit which too often obtains among medical men, of drawing general conclusions from one or two facts, such as the following:—A gentleman in affluent circumstances, very fond of the pleasures of the table,

and taking little exercise, will generally be found to be afflicted with the gout: and because his son, living exactly under the same circumstances, perhaps enjoying greater indulgencies, and being fully more indolent, also has the gout, it is marked down immediately as a strong proof of the hereditary nature of the disease. But if the case were somewhat altered, if the father, however gouty he might be, were to experience a reverse of fortune, and his son were obliged to break stones on the road, or to earn his bread by any other kind of severe labour, then there would be about a hundred chances to one, that, to whatever diseases he might be heir, he should never have the gout.

Gout is notoriously a disease of the rich, or rather, I should have said, of the affluent and indolent, who induce a constitutional plethora by living in a too luxurious manner, pampering the appetite, and overloading the stomach with different articles of food at each meal,—who do not take sufficient bodily exercise, or attend to the state of their bowels,—and who stimulate their systems in every possible way, till at length their bodies may be said to resemble a house filled with highly combustible materials, which requires but the addition of a small spark to set it in flames. Dr Scudamore observes, that in Scotland gout is much more rare than in England, and that in Edinburgh, where the habits of the people approach the nearest to those of London, it is seen most frequently; while in Glasgow the gout is very rare, even amongst the highest classes, which he ascribes partly to the greater activity of the people, and the better regulation of general habits; but he gives a sly hint, that the exemption may be owing also to the use of *Glasgow punch*, which is a more general beverage at the best tables than wine!! The truth undoubtedly is, that gout is comparatively rare among the middling ranks in Scotland, and that it is not nearly so frequent among the rich, as in the same class of society in England; and one cannot help feeling proud at being connected with a country whose population, from the highest to the lowest, are bent upon giving their children a better education than they themselves have received. Many a man in a humble walk of life is delighted with the thought that one

of his sons may possibly some day fill a pulpit, or be physician to some great embassy, or raise himself, by integrity and assiduity, to be a first-rate London merchant, or be sent to India, and become a rich Nabob. These are far greater sources of delight to the humble Scotsman, than pampering his own appetites. It is thus he raises the moral and intellectual character of his country, and prevents himself from being teased and tortured by many a bodily infirmity.—A word respecting the Glasgow people, and the Glasgow punch. I know that the statement made by Dr Scudamore is generally believed, but the truth is, we do not often meet with gout in Edinburgh in any class of society; and however unfrequent it may be in Glasgow, I am quite sure the habits of all classes of society in Edinburgh will at least stand a comparison with those of the inhabitants of that flourishing city.

The gout attacks males much more frequently than females; but some of the most severe and tedious cases of gout I ever attended happened in females; and during the course of the summer of 1830, a female had a severe attack, which was protracted for three months. She was very little benefited by any mode of treatment, till the parts affected were literally covered several times with leeches, after which she speedily recovered.

With respect to age, it has been remarked from the time of Hippocrates downwards, that it is a disease which, if it ever do occur, is rare, before the age of puberty. I have known one case in a boy, the son of a scientific friend, who, no doubt, had an attack of gout at an early age. As a general statement, the correctness of the following paragraph from Dr Scudamore may be depended on :—" I have not myself witnessed more than one example of a first attack before twenty, nor any after sixty-five."

I have seen the gout attack individuals of every kind of temperament, complexion, and disposition; and, with respect to severe study, I am sure this is much over-rated by writers as a cause of gout. " This cause, (says Dr Scudamore,) comprising not only want of exercise, lateness and irregularity in the hours of rest and sleep, but also its consequences, weakness of the stomach, and inactive bowels, by its effects on the

nervous system from the *over-action of the brain*, produces that form of irritative debility, which increases the susceptibility of the frame to disease, and consequently to gout, if such be the predisposition of the individual." I admit that people of studious habits, who eat and drink a great deal more than the wear and tear of the body require, will be liable to gout; but I do not consider it in any way connected with the over-action of the brain, which is certainly more conducive to health and longevity than indolence of mind, all other circumstances being the same. For example, I know one gentleman most intimately, with a strong hereditary title to the disease, who, for many years, has had his mind intensely engaged in scientific pursuits. During that period, he has scarcely ever enjoyed more than five hours sleep in the twenty-four,—and has often been two or three days and nights without being in bed, sometimes indeed four or five,—his constant habit is to sit over the "midnight lamp," till two, three, or four o'clock every morning; and yet, were he going to insure his life, he could obtain a policy at half the premium he could have done twenty years ago, with all the difference of age. He has preserved himself by rarely drinking any thing stronger than good table-beer; avoiding loading his stomach; and regulating the quantity of solid food to the exercise which he has enjoyed, the state of his bowels, and the degree of mental effort which he knows he must make after dinner. It may be mentioned as a hint to others, that when he has to apply his mind most assiduously, he prepares himself for the exertion, not by taking a very hearty meal and a more liberal allowance of wine, but by eating less than usual and taking no stimulant whatever, although he can, when necessary, enjoy his friend with a good dinner and a bottle of wine, as well as any other person.

All excesses in eating and drinking are bad for the animal system, and render it liable to disease; but overloading the stomach with different kinds of food at every meal, is, I am persuaded, far more frequently the cause of gout than over-drinking. Nevertheless, every habit which tends to produce plethora, combined with irritation of the stomach and bowels, may be considered as causes of gout. There are some kinds of wines, which, taken even in a moderate quantity, gouty

subjects always feel;—these are, more particularly, champaign and claret.

Upon the whole, then, I look to a diseased state of the mucous membrane of the stomach and bowels, as produced by all the above causes, either singly or combined, in addition to a plethoric state of the system, as being the cause of a gouty paroxysm. I believe that the seat of the gouty inflammation is in the nervous filaments of the part affected: but various opinions have prevailed upon this last point. Boerhaave considered a morbid texture of the nerves and capillaries to be the disease. The humoral pathologists supposed that it depended upon an acrimonious state of the fluids which are separated, and thrown off by a process of nature; and they considered the inflammation in the extremity to be a sign of a revulsion of the humours, and therefore regarded it as a mark of health.

Dr Cullen was of opinion, that "in some persons there is a certain vigorous and plethoric state of the system, which, at a certain period of life, is liable to a loss of tone in the extremities. This is in some measure communicated to the whole system, but appears more especially in the stomach. When this loss of tone occurs while the energy of the brain still retains its vigour, the *vis medicatrix naturæ* is excited to restore the tone of the parts; and accomplishes it by exciting an inflammatory affection in some part of the extremities." (Par. 533.) Thus it will be perceived, that here, as well as in fever, he makes strength to depend upon weakness, and weakness upon vigour and plethora of the system.

According to the views which I have taken of gout, it should be regarded simply as an inflammation of the affected part, produced by an effort of the constitution to remove disease from internal parts to the surface of the body. Therefore the inflammation of the toe is not to be regarded as a disease, but only as the occasional symptom of a disease, which may be one either of function or of structure. This is proved by taking a retrospective view of the causes of gout and the marks of constitutional disturbance, which always precede the inflammation of the part,—by the production of a great increase of internal suffering, sometimes even death, from the

sudden recession of the external inflammation,—and by the universal belief of those who have either seen the disease or experienced its sufferings, that a gouty paroxysm clears the system of something, which had been acting injuriously upon it for some time.

The body may be in a very high state of predisposition to take on gouty action, but it requires some additional accidental circumstances to bring it into operation; this is what is called an exciting cause, of which there are many; but the following are the most frequent. Exposure to cold and wet, particularly when the body is in a state of fatigue; long-continued coldness of the extremities; constipation; indigestible matter taken into the stomach; a cold drink when the body is heated; a particular act of intemperance, more especially indulgence in the use of certain kinds of wines; excessive evacuations; suppression of periodical discharges; the influence of the passions, a strain, or pressure from a tight boot or shoe, &c.

Treatment of Gout.—In the treatment of gout, it is to be feared that much mischief is frequently done by large and repeated bleedings, under the idea that this disease depends upon an internal affection of an inflammatory nature. Injurious consequences have also followed from the opposite course of never bleeding, the practitioners treating the symptoms as the disease, which they supposed to possess some peculiar and mysterious character, rendering all interference hurtful, even dangerous, and therefore dooming the patient to Dr Cullen's remedy of *patience* and *flannel*. Many highly respectable men still entertain this opinion; and it becomes an important inquiry to ascertain how this should have come to pass. Many people are still guilty of pinning their faith to the sleeve of Cullen, never once calling their own good sense into action Heroic remedies, if not loudly called for by threatening symptoms, undoubtedly do mischief, by interfering with the salutary operations of nature. Many practitioners, I am sorry to say, treat every disease which comes before them according to its name, and not according to sound pathological principles, including the consideration of age, constitution, habits, and duration of the disease. Some patients are therefore bled

who do not require it, and the consequences are injurious; others are bled who cannot bear it, and who ought to be treated by cordials, and the result is fatal; many patients are over-purged with drastic medicines, to the aggravation of the disease, while others are bunged up with opium. Some patients are highly nourished and over-stimulated, because the doctor thinks gout a disease of debility, which, in all cases, requires nourishment; and as the heart is unable "to pump the blood to the brain, which may produce fatal syncope," the strongest stimulants are necessary to effect that end. Such practitioners never alter their practice, they have one steady method of treatment for all cases. There are also reasons why the public in general entertain a dread of interfering with the course of a gouty paroxysm. It may be a prejudice handed down from father to son, and the notion very probably owes its existence to statements made to that effect in medical writings. But the principal reason appears to be, that many people ruin their constitutions, and some even die suddenly, from being in the habit of going on indulging their appetites, because they know they can relieve themselves very speedily during a paroxysm, by the use of *colchicum* or the *eau medicinale*. There is a very satisfactory method of explaining why gout should be imagined, by people unacquainted with medicine, to be ultimately conducive to health, and to rid the constitution of something noxious. Observing people perceive, that some constitutional ailments, such as indigestion and its attendants, always precede a gouty paroxysm; and that after the fit subsides, these no longer exist. Now, this is no doubt correct, that the external inflammation has the effect of relieving the internal disease. But there is another circumstance which is not observed, or which is lost sight of, and that is, that persons who have suffered the agony attending a paroxysm of gout, subsequently, for a considerable time at least, avoid all causes which they know will expose them to the return of such a torturing visitor; they also attend to their bowels, and take more exercise. I know many, even highly predisposed persons, who have thus warded off the disease for years.

Regarding the disease according to the views I have endeavoured to point out, the treatment is generally quite simple.

In a first paroxysm of gout, and in all slight cases, little constitutional treatment is necessary, further than keeping the bowels gently open by any mild laxative exhibited every six or eight hours, and restricting the diet to very small quantities of farinaceous food, or merely allowing thin gruel or arrow-root; and the best ordinary drinks are whey, barley-water, or toast-water. The patients are to be kept cool and quiet, and if the pain and inflammation of the affected part be slight, a tepid evaporating lotion, composed of three or four ounces of tincture of camphor to a pound of water, is to be applied to the part, by means of linen several times folded, and kept constantly wetted. This does not differ from the lotion recommended by Dr Scudamore, which consists of one part of alcohol to three parts of the mistura camphoræ, and which, he says, he has used with great satisfaction to himself, and with the best success, and he recommends its temperature to be from 75° to 85°.

In more severe cases, however, venæsection may be required, but should never be adopted upon slight grounds, even if the patient be plethoric. The circumstances which serve to render general bleeding necessary, are, symptoms threatening an apoplectic attack, or shewing the existence of inflammation in some internal organ; and as Dr Scudamore justly remarks, "in the circumstances in which bleeding is a proper remedy, its *early* employment is a point of much importance. When delayed, it will be found that the depression of strength resulting from the excessive irritation of the nervous system counteracts its advantages in a great degree." The pulse, in some measure, affords a guide; if it be full and hard, accompanied with a hot skin, thirst, and scanty high-coloured urine, general bleeding can rarely do harm; and is absolutely necessary if inflammation of any internal organ exist. The quantity of blood which ought to be abstracted, is regulated by circumstances that have been already fully considered when treating of many other diseases; but so cautious should we be about opening a vein, that I would strongly recommend, in the first instance, the application of a considerable number

of leeches to the affected part, particularly if much local inflammation exist. This practice is recommended because it seems to be following the course pointed out by nature. In determining the number of leeches that may be necessary, it is much safer to err by applying two or three too many, than too few, because, if a sufficient quantity of blood be not drawn, the advantages from the depletion are counterbalanced by the additional irritation from the bites. But we must always keep in view, in the treatment of gout, that the disease is produced by constitutional causes, and is not to be altogether relieved by local means. The practice of leeching the part affected is noticed by Cullen, and has, in some measure, received his sanction, although it would seem he had not often employed it. In Par. 563, he says: "I believe, however, that bleeding by leeches upon the foot, and upon the inflamed part, may be practised, and repeated with greater safety (than general bleeding); and I have known instances of its having been practised with safety, to moderate and shorten paroxysms; but how far it may be carried, we have not had experience to determine."

Emetics have been extolled by some, but are only to be administered if indigestible food is suspected to be lodged in the stomach, and when there is distressing irritation from slight nausea, and hot acid eructations.

Mercurial preparations are to be occasionally given in conjunction with laxative medicines, particularly if the stools shew either a deficiency of bile, or are dark-coloured and fetid. It is immaterial whether we use calomel or the blue-pill; sometimes, indeed, when the liver seems implicated, a slight mercurial course is necessary.

In cases where there is a burning heat at the pit of the stomach, or other signs indicating inflammation, or even a high degree of irritation of the mucous membrane of the stomach and bowels, a sufficient number of leeches must be applied, or cupping had recourse to, followed by rubefacients or blisters. I have often seen considerable benefit in cases which indicated, not only the existence of abdominal, but also of thoracic disease, by producing two or three successive crops of eruptions, by means of the tartar-emetic ointment.

Opiates are highly serviceable in allaying pain and producing sleep, and have been in greater favour with practitioners than any other class of remedies; but they are inadmissible, before the bowels have been sufficiently relieved,—when the patient is threatened with apoplexy, or any other cerebral affection,—and, indeed, when there is local inflammation of any internal organ, unless they be conjoined with the remedies necessary for its cure. When opium disagrees, hyosciamus may be substituted.

Many years have not elapsed since the *eau medicinale* was in high repute, but it has now shared the fate of the Portland powder, and of all other pretended specifics for gout.

The *colchicum autumnale* has been highly recommended during paroxysms of gout, and has been used with the best effects, not only in alleviating the immediate sufferings of the patient, but in breaking the severity of the disease; but it has no claim to the title of a specific. There is considerable difference of opinion among practical men as to which preparation of colchicum is the most efficacious. Some recommend the powder of the bulb; others, that of the seed; many prefer the wine of the seed; while others extol the acetic preparation. I have used all the preparations, but find a saturated infusion of the seeds in wine to answer better than any other. It is to be exhibited, according to the age and constitution, in doses of from twenty to a hundred and twenty drops, conjoined either with the same quantity of tincture of hyosciamus, or with a half, or even a third part of the sedative solution of opium, which will be found to answer better than laudanum. In some cases, when the stomach is exceedingly irritable, and when the colchicum cannot be retained, leeches may be applied, or a blister, over the epigastric region; and a pill with two, three, or four grains of calomel, and two of opium, may be exhibited. In treating a case of gout with colchicum, it is by no means to be trusted to alone, as if it were a specific; it is necessary to attend to the state of the bowels, and allay local inflammation in the same manner as if colchicum were not employed.

Alkalies are very serviceable when there is acidity in the stomach, or when there is much irritation in the urinary

organs, particularly when the urine is high-coloured, and deposites a red, sandy sediment. If it be necessary at the same time to give any laxative medicine, we may use Henry's Calcined Magnesia, in which are conjoined antacid as well as aperient properties.

During paroxysms of those forms of gout which have been termed "atonic" and "retrocedent," we must treat each case according, not only to the organ affected, but to the nature or kind of the affection. We must be careful not to confound mere functional disorder with inflammation, an error which young practitioners are very liable to commit, but which is not attended with fatal consequences nearly so often as mistaking inflammation for the other class of affections.

In cases where pain and inflammation are shifting about from place to place, it is a good plan to leech such parts, as well as to produce contra-irritation on the chest if respiration be at all affected, or the patient troubled with palpitations; and on the epigastric region, if there be evidence of much gastro-intestinal irritation. Should inflammation attack any organ, it must be treated upon general principles, always, if possible, making use of leeches or applying cupping-glasses instead of venæsection, unless the patient be young and plethoric, or there be signs of local congestions, or unusual determinations of blood to any particular organ.

Management of Gouty Subjects during the intervals.

As soon as a gouty paroxysm begins to subside, it is our duty to make the patient aware of the usual progress of gout in undermining the constitution; in order that he may the more readily submit to directions which he is to receive for his future management. It ought to be impressed upon him, that medicines can be of little comparative service, unless he live abstemiously, and alter many of his habits. Perhaps the point of most importance is a proper regulation of the diet, so as to make it correspond to the degree of his daily exercise. I am aware how impossible it is to prescribe a proper diet for each individual, until we come to know his peculiarities of constitution and previous habits; but there are certain general directions which it is adviseable to give in

all cases, in the first instance at least, which can be modified and changed afterwards, according to circumstances.

At breakfast the patient may be allowed one large breakfast cup of milk, tea, coffee, or chocolate, according to his taste, with an egg, and bread and butter. Meat and fish should be interdicted at this meal, which should be taken at eight o'clock in the morning, to ensure his rising early, as well as for the purpose of regulating the hours for the other meals. From that time he should take nothing till dinner, which should be about two o'clock, when he may be allowed a moderate quantity of animal food, not exceeding from a quarter to half-a-pound, cooked in a plain way, perhaps on a gridiron is the best, with as much stale bread as he chooses, and a small quantity of any of the ordinary vegetables that agree with him; but he must dine upon one dish, particularly for some time after a paroxysm. At any subsequent period, should he wish to partake of two articles at one meal, the quantity of each must be regulated in such a manner that the stomach is never over-distended. Should he take fish, it must be eaten without melted butter, a good substitute for which is meat gravy; and the reason why vegetables should be avoided as much as possible is, that they tend to produce acidity and flatulency in the stomach and bowels when their functious are in a weakened state. For drink, I believe that good sound table-beer will be found to agree very well with the generality of people, if it be not hard, or too weak, and if it be taken in moderate quantity. If beer should disagree, a desert-spoonful of brandy in a tumbler of water, will be found a very good substitute. With respect to wine, the use of it depends entirely upon former habits; were old gourmands deprived altogether of their usual stimulus, they would quickly sink; but in younger subjects, when the constitution is as yet unbroken, it will be well to advise the patient to avoid the habitual use of any stimulant whatever. At 7 o'clock in the evening, the patient should have another meal, consisting of the same articles as at breakfast; and if he take any thing afterwards, which I do not, however, think necessary, it may be a tea-cup full of gruel at ten o'clock, on retiring to rest. He should sleep in a large well-aired room, with sufficient clothing

to make him feel comfortable, but not to produce perspiration, the continuance of which tends to occasion constitutional debility, perhaps more than any other circumstance whatever. It should be ascertained, when the patient goes to bed, that his feet are comfortably warm; if not, friction should be used, or he should be supplied with a bottle of hot water; whereas, if they should be too hot, which is sometimes the case, they should be bathed for some minutes in milk-warm water. A gouty person, in particular, should not sleep on a feather bed, nor should he indulge in the use of soft pillows, more especially if there be any tendency of blood to the head, when his head and shoulders ought to be considerably elevated. The bowels should form a chief object of attention; they must not be allowed to be constipated; but the opposite extreme is fully, if not more injurious. Many individuals are injured by the pernicious habit of taking some strong physic now and then; but it will be invariably observed, that the bowels become afterwards more torpid. All laxative medicines which operate violently, or produce watery stools, should be avoided. Patients should be furnished with different kinds of pills, of which they should regularly take such a quantity as will produce one, or at most two evacuations daily, or a tea-spoonful or two of Henry's Calcined Magnesia, sometimes by itself, at others, joined with six grains of rhubarb, and three or four of ginger.

During the day care must be taken to preserve the feet in a proper degree of warmth; and the patient should at first be very cautious not to use too much exercise, which will not only weaken the body, and derange the functions of the stomach, but will injure the limb which has been recently the seat of inflammation. By degrees the exercise may be increased, but should never be violent, or carried to such an extent as to create fatigue. Till his health is completely established, he should avoid exposure to night air, and at all times carefully protect his body against the influence of atmospheric vicissitudes.

At any period that digestion becomes impaired, which will be indicated by a loaded tongue, and a sense of fulness and distention after meals, patients should not depend so much

on drugs for relief, as on the restrictions of diet, but I do not mean to undervalue the effects of medicines. Every practical man must be aware how advantageous are a blue pill, or a grain or two of calomel, and a small quantity of extract of colocynth, when the tongue is loaded with a white or with a yellowish fur. These, with the addition of from ten to twenty drops of nitric acid, in four ounces of infusion of quassia, compound infusion of gentian, or in water along with two grains of the sulphate of quinine, once, twice, or thrice a-day, are often beneficial. In some constitutions the occasional use of the warm bath will be found serviceable, while in others the cold bath will best agree. There is almost no individual so situated that he cannot obtain the advantages frequently found to result from the shower-bath, which may at first be used warm, and afterwards gradually made more and more cold, as the strength increases.

CHAP. II.

RHEUMATISM.

Most authors describe two, others three varieties of rheumatism, viz. the acute and chronic rheumatism; and rheumatic gout, which last is so termed from its resemblance to both diseases. The following is Dr Cullen's definition of acute rheumatism:—"A disease produced by an external cause, which is, in general, known, attended with pyrexia; pain about the joints, following the tract of the muscles, attacking the knees and larger joints, in preference to those of the feet or hands, increased by external heat."

Dr Mason Good has given the following definition: "Pain, inflammation, and fulness, usually about the larger joints, and surrounding muscles; often wandering; urine depositing a lateritious sediment; fever *a cauma*" (inflammatory.)

Acute Rheumatism.

Although the diseases cannot certainly be identified, yet there are many strong points of analogy between gout and rheumatism. Few men can be long in practice without meeting with cases which have some resemblance to gout, and some to acute rheumatism, so much so, that it is a common enough circumstance to hear practical men speak of "rheumatic gout." Some, indeed, maintain that gout and rheumatism are only varieties of the same disease; while others allege, that although they are not exactly the same, yet the one often passes into the other.

Acute rheumatism generally attacks young people, or those rather below than above middle age, after long exposure to cold and moisture, as sleeping in damp sheets, remaining long

in wet clothes, particularly after fatigue, or from changing winter clothing too early in spring, to which people are often tempted by a few successive days of warm weather.

Symptoms of Acute Rheumatism.—After exposure to some of the above mentioned causes, the patient complains of rigors or chilliness, with a general feeling of numbness, pain, or aching: febrile symptoms soon follow, when the skin is pungently hot, and the pulse quick, full, hard, and bounding, even in weakly subjects, and will be found to beat from 100 to 140, perhaps even higher. As the febrile symptoms increase, the pain becomes more acute; it is generally an aching or gnawing pain, with numbness, and powerlessness, and it sometimes even possesses the pungent, hot, lancinating character of gout. The pain is sometimes general, but some one joint is more intensely affected than the rest; and we also see translations of the disease take place, which are so frequently observed in gout. In acute rheumatism, the parts affected usually become red, swollen, and tender to the touch, although in some cases it is observed that the redness and swelling are slight in comparison to the degree of pain. The least motion aggravates the pain as in gout, and it often shoots with great severity, either along the course of the muscles, or the nerves and their ramifications.

Sometimes local pain exists before the general febrile commotion, although this is rare, unless a patient with chronic rheumatism, from imprudent exposure or other causes, excites the acute form of the disease. The pain and febrile symptoms abate and increase irregularly; generally speaking, however, the patient is most tormented at night, which circumstance is observed in almost all other diseases. The muscles often feel hard, rigidly contracted, and sore to the touch; the intercostals are occasionally affected in such a manner as to resemble in every respect an attack of pleurisy, which has been already noticed when treating of that disease, under the term "Pleurodinia." The muscles of the abdomen are occasionally painful to the touch, without hardness of the part, so as to resemble peritonitis. The muscles of the back are often affected, the complaint being well known by the term "lumbago." Another affection, either of the sciatic nerve, or of the muscles which

pass from the trunk to the lower extremities, sometimes takes place, which is called "sciatica." These latter affections, however, very frequently occur without fever, unless during the night, and are usually described under the head of chronic rheumatism.

In acute rheumatism, the tongue is generally loaded, often red, particularly round the edges, and fissured; the appetite is destroyed; the thirst excessive; the urine scanty and high-coloured, depositing a heavy sediment, as in gout. There are sometimes nausea and vomiting, with considerable internal heat, particularly in the epigastric region, with irregular, generally costive bowels, and fetid evacuations. At others, there are headache, with intolerance of light, and sometimes even inflammation of the eyes, which is well known to attack a particular part, viz. the sclerotic coat. On other occasions, symptoms of cerebral irritation or inflammation take place: and it is well known that dissection has frequently and unequivocally revealed an inflammatory condition of the membranes of the brain. But the pericardium of all parts is the most liable to the occurrence of inflammation during the course of rheumatic affections,—a most insidious disease under any circumstances, but more particularly so, when the attention of both patient and practitioner is attracted to the pained joints. The skin is generally dry and hot in acute rheumatism, but is sometimes bathed in a clammy sweat.

In the consideration of all diseases, after becoming acquainted with their phenomena, the most important point is to determine their nature and seat. With respect to acute rheumatism, some allege that it is a disease of the sanguiferous, others of the nervous system. My own opinion is, that both systems are deeply implicated, but that the real nature of the disease is inflammatory. All the symptoms prove this position, for even in the weakest subject the pulse is quick and strong; the fever is undoubtedly inflammatory; the affected part generally possesses all the characters of inflammation; and blood, when drawn from a vein, shews an inflammatory crust.

It would be interesting if we knew whether the inflammation were situated in the cellular substance, in the muscles, nerves, blood-vessels, or lymphatics. That the inflammation

is not seated in the cellular substance is rendered probable, from its rarely terminating in suppuration, ulceration, or gangrene. I cannot pretend to determine the seat of the inflammation; but from the quick translations which take place, and the resemblance which rheumatism in many points bears to gout, it is very probable that it involves the nervous filaments more considerably than any other tissue. But I have seen cases which presented symptoms similar to those of rheumatism, in which, after death, the lymphatics of the limb were found inflamed, and filled with a puriform fluid. Many French pathologists have come to the conclusion, that rheumatism is nothing more than acute inflammation of the lining membrane of the arteries.

Treatment of Acute Rheumatism.—Many writers insist much upon the importance of a proper diagnosis between gout and rheumatism; but practical men know how difficult this is in many cases, how impossible in some, and I might add, unprofitable in many, as both diseases must be treated very much upon the same principles, with this exception, that rheumatic subjects bear bleeding better than gouty, and that in them it is generally more beneficial.

The following diagnosis has been drawn between the two diseases:

Gout.	*Acute Rheumatism.*
Gout is a disease which rarely attacks the young; males are more frequently affected than females.	The young are as liable to this disease, if exposed to its causes, as those more advanced in age, and females as well as males.
Gout is more connected with some internal disease, more particularly with disorder of the viscera connected with digestion.	Rheumatism frequently attacks people in perfect health, and is always to be traced to cold and moisture, although acute inflammation of an internal organ may be produced at the same time with the original disease, or may be subsequently engrafted on it by translation or otherwise.
Gout generally infests the smaller joints.	Rheumatism attacks the larger joints.

Gout.	*Acute Rheumatism.*
In gout, the pain is burning, pungent, and lancinating.	The pain is generally gnawing and numb, occasionally pungent and lancinating.
In gout, the external inflammation is a bright, intense red; the swelling takes place rapidly, and the part is much more sensible and tender.	In rheumatism, the inflammation is said to be less intense, and the swelling not so great, or, at least, so rapid. It is said also that rheumatism shews more regular exacerbations towards night than gout; and that the pulse is more full, hard, and bounding, which characters it often preserves for a considerable period after the subsidence of the external inflammation.

A great deal of discussion has taken place in the profession respecting the treatment of rheumatism. One set of practitioners depend entirely upon venæsection; another upon purging; a third upon exciting long-continued profuse perspirations; a fourth upon the exhibition of bark alone; and a fifth upon a course of mercury to produce salivation. It is no wonder, therefore, under such empirical treatment, that an attack of the disease used formerly to continue violent for such a long period of time. Formerly an attack of acute rheumatism, with its sequelæ, generally confined the patient for twelve months, that is to say, before he regained his ordinary state of health, and few got off with less than six months confinement to bed. Of late years, more common sense pervades the profession, and each case is now treated more upon pathological principles. The best remedy we possess for the cure of acute rheumatism, is venæsection, provided the patient be plethoric, or have an unbroken constitution, and the disease be in its early stages. The general inflammatory diathesis which prevails, the local inflammation in the parts, the highly inflammatory state of the blood, and the knowledge which we have derived from *post mortem* examinations,—all proclaim the propriety of general bleeding in severe cases, in the circumstances already mentioned. The precise quantity of blood to be taken, can only be determined by watching its effects upon the constitution. We frequently, however, meet with people

of nervous, irritable habits of body, and others who have been much injured by dissipation, in whom venæsection will in general prove injurious; and I may add, that it will often produce bad effects even in the strongest constitutions, unless it be followed up by proper after-treatment.

The good effects of the tartrate of antimony in small, but frequently repeated doses, so as to keep up slight nausea, without producing vomiting, cannot be praised too highly; but the patient should be lightly covered with bed-clothes, so as not to excite perspiration. I have often employed antimony with great success in cases where general bleeding was inadmissible; but if there be considerable plethora, and a strong, hard, bounding pulse, antimony will have a better effect when venæsection is premised.

Local bleeding by leeches has very good effects, and ought never to be neglected when the inflammation runs high. When leeches are employed, however, a considerable number should be used; and I make it a rule, after the leeching is commenced, to chase the disease, as it were, from joint to joint without intermission, pursuing other means of treatment at the same time.

In many cases, decided and immediate advantage will be derived from the employment of colchicum, combined with the sedative solution of opium, or with large doses of the tincture of hyosciamus, precisely in the same manner as has been recommended in gout. It sometimes succeeds after the failure of antimony; but in general I like to try the latter before having recourse to the colchicum.

It is highly necessary, throughout the whole course of the disease, to keep the bowels moderately open; but violent purging is by no means necessary, and is often injurious. If the tongue should be loaded with a white or yellow crust, two or three grains of calomel, combined with four or six of rhubarb, or four grains of colocynth, may be given at bed-time, and the operation assisted next morning by castor oil or an injection.

The old plan of sweating patients for ten or fourteen days, by means of large and repeated doses of Dover's powder, warm diluents, and a load of bed-clothes, is, I hope, now very

generally abandoned, as it is attended with the same injurious effects as too frequently repeated and indiscriminate bleedings.

I can say nothing, except in condemnation, of another plan too indiscriminately followed, viz. the calomel and opium treatment. I have often seen the tongues of patients swollen and ulcerated, and profuse salivation produced, without the least signs of amendment.

The Peruvian bark was formerly highly extolled in acute rheumatism, and has been used and approved of by many celebrated physicians of the last age. Dr Haygarth came to the conclusion, that "bark does not cure an ague so certainly and so quickly as it does the acute rheumatism." It is impossible to reconcile such a statement with the opinions maintained by others respecting the same medicine. "The Peruvian bark (says Cullen, par. 469.) has been supposed a remedy in some cases of this disease; but we have seldom found it useful, and in some cases hurtful." I formerly tried bark in all its forms, and my experience exactly corresponds with that of Dr Cullen; in fact, I have never seen it useful, except in one case, when it was employed after copious venæsection. There can be no doubt, however, that cases may occur, in which the sulphate of quinine will be found beneficial, where the bark in substance would prove injurious, and the infusion, or any other preparation, too weak to have any effect whatever; and there is much good sense and discrimination in the following passage from Cullen. Speaking of bark, he says,— "It appears to me to be fit in those cases only, in which the phlogistic diathesis is already much abated, and where, at the same time, the exacerbations of the disease are manifestly periodical, with considerable remissions interposed."

With regard to stimulants, such as gin and brandy punch, and a bottle or two of port wine daily, which are so generally prescribed by some, I shall say nothing. It is to be regretted, that the laws applicable to medical men in China, cannot be had recourse to in this country.*

Blisters ought never to be employed in acute rheumatism,

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* Vide Penal Code of China, by Sir George Thomas Staunton, 1810, page 319.

at least in the early stages, unless there be evidences of the existence of pericarditis, or inflammation of some other internal organ.

Fomentations are seldom serviceable, and the warm bath is often injurious, in acute rheumatism, from the increased pain produced by the motion which it requires. The sulphurous vapour bath, however, has been much praised by several individuals, but in looking at a table of M. Galé, I find nothing to recommend it. The plan was tried in sixty-five cases, of which twenty-five only were cured, thirty-two were stated to have been much relieved, and eight derived no benefit from the remedy.

The diet should be antiphlogistic during the acute stage, and farinaceous and unstimulating for some time after, until the pulse ceases to be full and bounding. After the patient has been for some time convalescent, when the limbs are stiff, and the joints somewhat rigid, good effects will be occasionally produced by general cold bathing; but the health and strength must be in other respects quite restored, and all the functions natural. Frictions with a hair glove are to be used and persevered in.

Chronic Rheumatism.

This form of rheumatism sometimes succeeds the acute disease, and may be confined to one part of the body, or may be general. The patient complains of a dull gnawing pain, increased on motion, with little or no fever or local inflammation. There is frequently swelling about the joints, and occasionally contraction, and the muscles are sometimes rigid. The pains are often relieved by the application of heat, but are always aggravated by exposure to cold damp air, and occasionally also by the application of heat, so that frequently patients pass painful and restless nights.

In this form of the disease, the warm water and the vapour bath, together with rubefacients, are found more beneficial than in acute rheumatism. The Russian plan of treatment is said to be decidedly superior to any other, which is to expose the patient to vapour at a very high temperature in a room, where the evaporation of water is produced by dashing it

upon stones intensely heated. After this has been persevered in for some time, the patient still remaining in the same apartment, small quantities of cold water are dashed upon the parts affected; the body is afterwards well rubbed. I am told by a gentleman who has undergone the process, that the relief is very decided.

If there be any fever, the antimonial treatment will be found beneficial, as will colchicum; and, in several cases, I have seen permanent advantage produced by the combined effects of the wine of colchicum and tincture of hyosciamus.

It has been already mentioned, that rubefacients are sometimes serviceable, and it may be now stated, that excellent effects have been occassionally observed to follow the application of blisters, but more particularly the contra-irritation produced by antimony ointment, and moxas, a remedy in great repute on the continent.

Train oil, obtained from the liver of the cod-fish, is highly extolled by Dr Percival, and has since been used by other individuals, particularly by Dr Bardsley, who exhibited from one to three table-spoonsful daily. I have seen it tried, and persevered in for some weeks at a time, without observing any benefit whatever from its use; and I can only wish a few doses were exhibited to those gentlemen who have the patience to prescribe it for others.

The arsenical solution and bark have been recommended, when the disease shews any tendency to periodicity.

Of late years acupuncturation, which is said to be an Eastern remedy for this disease, has been employed in various parts of Europe for the cure of chronic rheumatism, and with most astonishing good effects; the operation is said to produce little or no pain, and no hemorrhage. A single puncture has been found sufficient to remove an ache of some years duration; generally from two to six sharp-pointed needles are used at once, and are pushed at a little distance from each other into the affected part, to the depth of half an inch, and, in fleshy parts, even of an inch; each needle is allowed to remain for about five minutes before it is withdrawn. It is observed that the pain sometimes leaves the part into which the needles have been introduced, and flies to another; but we are told to follow it with the instrument.

Lumbago and sciatica appear to me to be more decidedly of a nervous nature than any other, and are to be treated in the following manner;—viz. by gentle laxatives, frictions, and rubefacients, and the frequent use of the hip-bath. But what answers fully better, is to pour a small stream of very hot water over the part affected, the patient being placed in a comfortable posture, either sitting on a bidet, or any convenient article, to receive the water, which should be heated to 130° or 140°. In fact, it should be so hot that the finger cannot be kept immersed for any time. Acupuncturation may also be necessary in sciatica, which is the most intractable of the two affections, although commonly not so severe. I have seen the best effects produced even in old-standing cases, by wearing a chamois-leather jacket and drawers, in all the forms of chronic rheumatism. It is of the utmost consequence to regulate the diet, as relapses may be frequently traced to indigestible articles of food. It is said that individuals previously liable to attacks of lumbago and sciatica, have escaped further annoyance by wearing a piece of stick-sulphur in their breeches pockets ; and it is well known that the internal use of sulphur is a popular remedy for all forms of rheumatic complaints.

Rheumatic Gout.

I do not consider it necessary to give a description either of the phenomena of this disease or its treatment, as it is sufficient for all practical purposes to refer to what has been already said respecting gout and rheumatism.

CHAP. III.

SCROFULA.

Dr Cullen has given the following definition of scrofula :— "Enlargement of the conglobate glands, especially in the neck; the upper lip, and columnæ nasi, and lower part of the nostrils, tumid; the face florid; the skin soft; the abdomen enlarged."

Dr Mason Good, who applies the term "*struma*" to this class of affections, gives the following definition :—"Indolent, glandular tumours, chiefly in the neck; suppurating slowly and imperfectly, and healing with difficulty; upper lip thickened; skin smooth; countenance usually florid."

The belief is almost universal, that this class of diseases is hereditary, and that it is confined to an unhappy few, who transmit it from father to son, from one generation to another, far more regularly than they transmit their money or virtuous reputation. I must confess my scepticism upon this point, as many instances might be quoted where both parents were strongly marked with all the appearances described as scrofulous, nevertheless their children were very healthy. On the other hand, cases are often seen where the parents had no vestige of the complaint, and yet the children were scarcely ever without some of the affections generally denominated scrofulous. Many authors, aware of these circumstances, observe, that it is true the parties are not born with the disease, but only with a greater aptitude to receive certain morbid impressions, which may bring the latent disposition into action. This is a very plausible salvo, but it is too vague to be received as medical evidence. They also say, that a remarkable circumstance attending scrofula is, that it does occasionally pass over

one generation, and appear again in the next, so that "the grandfather and grandson shall be both scrofulous, while the intermediate person, who holds the most intimate relation of father and son, and connects the two others, shall be exempt from any attack of the disease."

My opinion with respect to glandular affections denominated scrofulous is, that they are generally engrafted on the constitution by improper food, and deficient clothing;—by neglect, or bad medical treatment during the period of dentition; the progress of scarlet fever, measles, and other eruptive fevers, as well as during the ordinary eruptions and affections of the throat. And lastly, that they are produced by mismanaging swollen and inflamed glands during their early stages. Hence it is a disease with which some of the members of almost every family in this climate are at one time or another affected. We see glandular affections in persons of every variety of colour of the hair, eyes, and appearance of the skin, and in every variety of constitution. I have, therefore, long ago persuaded myself that they depend upon gastro-intestinal irritation, which point of pathology has been clearly established with reference to the most scrofulous of all scrofulous diseases, viz. that which is termed "*tabes mesenterica.*" This view is much strengthened by the following circumstances:—Scrofula is a frequent disease among the poor, and those who are fed upon large quantities of weak broth, coarse ill-baked bread, or hard indigestible puddings. From these causes the disease is often seen in charitable establishments for children; and I have also seen it traced to English boarding-houses, where the children are crammed with hard pudding, before they are allowed even to smell meat, and are told "*that the young ladies and gentlemen who eat most pudding shall have most meat.*"—Poor children! Another important fact may be mentioned, that scrofulous affections can be produced in a short space of time in many of the domestic animals, by unwholesome feeding. Thus I have seen them purposely produced in poultry, rabbits, and pigs, by such means. A pig is called "*measly,*" when it is affected with a very general disease of the glands throughout the body, which is well known to depend upon the manner in which it has been fed.

It has been my belief for many years, that many of the affections called scrofulous, may, in a considerable number of instances, be traced to the exanthemata. In order to obtain precise facts upon the subject, I requested Dr Robertson, Surgeon to the Edinburgh Eye-Dispensary, to preserve a list of all the diseases of the eye usually denominated scrofulous, as well as those accompanied by glandular and cutaneous affections, usually attributed to scrofulous action, in order to ascertain how many were attributed by the parties themselves or their parents to the exanthemata, and hooping-cough. Dr Robertson accordingly directed his attention to this point, and in the course of twelve months informed me, that almost all the cases were attributed by the parties themselves, or their friends, to those diseases. This investigation took place nine years ago; and Dr Robertson informs me, that he has seen nothing in his extensive experience since that period, to weaken the effect which it made upon his mind. It may be added, that the result of my daily practice confirms and supports the views already stated.

There seems good ground for the following statement, made by Mr Lloyd, in his valuable Treatise on Scrofula, p. 7.:— "Among the symptoms indicating a disposition to scrofula, it has been already observed, that a fair complexion, and light hair and eyes, are generally mentioned; but I believe there are no legitimate grounds for such distinction. Indeed, I am fully convinced, from a very extensive investigation of the subject, that persons of every variety of complexion are alike subject to this disease; and that it is only necessary to place them in circumstances favourable for its developement, to have it fully established."

The reasons will now appear evident why scrofula is a disease that no one can properly define; every physician having a definition of his own. The term is applied too often to diseased states of the system, with the nature of which the physician is entirely unacquainted; and it is too frequently used for the purpose of concealing professional ignorance, when he is puzzled and foiled in the treatment of disease.

I most heartily coincide with the sentiments expressed by Mr Lloyd in the following paragraph: "In describing the

symptoms indicating a scrofulous diathesis, all the authors with whom I am acquainted have fallen into the error of describing the state of a patient, after the disease has given local evidence of its existence, instead of informing us of the temperament or habit of body of the patient antecedent to this period; a circumstance which I cannot but consider as of the highest importance in our pathological research. Thus they enumerate among the symptoms of a scrofulous diathesis, or which only denote a tendency to scrofula, 'a thickened chapped upper lip, the thickening extending to the alæ of the nose,' 'tumescence and redness of the tarsi,' with weakness of the eyes in general, 'tumid belly,' and 'enlargement of the lymphatic glands, particularly those of the neck.' These, it is true, (continues he,) afford very decisive evidence of the existence of the disease, but should not be ranked among the symptoms indicating only a disposition to it. All the other symptoms illustrative of the same point, which have been adduced, are either dubious or uncertain; as fair and shining skin; light hair and eyes; females being more subject to it than males, or males than females; both of these contradictory positions having their respective advocates." (Page 3.)

I have many cases annually under my care illustrative of these statements, and proved not only by the previous history, but by the effects of proper remedies. For, as the functions of the stomach and bowels become more impaired, the inflamed and tumid appearance of the eyes, nose, or lip, become more and more evident, until, perhaps, ulceration takes place. But as the condition of these functions is improved, the above described state of parts disappears.

All parts of the body are liable to be affected by scrofulous degeneration; thus it is seen in the brain, lungs, heart, liver, spleen, kidneys, muscles, and bones, and also in serous and mucous membranes.

I cannot do better than extract the following description of scrofula, when left to itself, from Dr Cullen's "First Lines on the Practice of Physic," (Par. 1743, et seq.) "Frequently the first appearance of the disease is the tumid and chopped lip above mentioned. Upon these occasions, the first appearance is that of small spherical or oval tumours, moveable un-

der the skin. They are soft, but with some elasticity. They are without pain, and without any change in the colour of the skin. In this state they often continue for a time ; even for a year or two, and sometimes longer. Most commonly they first appear upon the sides of the neck below the ears ; but sometimes also under the chin. In either case, they are supposed to affect in these places the conglobate or lymphatic glands only ; and not at all the salivary glands, till the disease is very greatly advanced. The disease frequently affects, and even at first appears in, other parts of the body. In particular, it affects the joints of the elbows and ancles, or those of the fingers and toes. The appearances above the joints are not commonly, or elsewhere, small moveable swellings ; but a tumour almost uniformly surrounding the joint, and interrupting its motion.

" These tumours, as I have said, remain for some time little changed ; and from the time they first appeared in the spring, they often continue in this way till the return of the same season in the next, or perhaps the second year after. About that time, however, or perhaps in the course of the season in which they first appear, the tumour becomes larger and more fixed ; the skin upon it acquires a purple, seldom a clear redness ; but growing redder by degrees, the tumour becomes softer, and allows the fluctuation of a liquid within to be perceived. All this process, however, takes place with very little pain attending it. At length some part of the skin becomes paler ; and by one or more small apertures a liquid is poured out.

" The matter poured out has at first the appearance of pus, but it is usually of a thinner kind than that from phlegmonic abscesses ; and the matter as it continues to be discharged, becomes daily less purulent, and appears more and more a viscid serum, intermixed with small pieces of a white substance resembling the curd of milk. By degrees the tumour almost entirely subsides, while the ulcer opens more, and spreads broader ; unequally, however, in different directions, and therefore is without any regular circumscription. The edges of the ulcer are commonly flat and smooth, both on their outside, and their inner edge, which seldom puts on a callous

appearance. The ulcers, however, do not generally spread much, or become deeper; but at the same time their edges do not advance, nor put on any appearance of forming a cicatrix.

"In this condition the ulcers often continue for a long time, while new tumours, with ulcers succeeding them in the manner above described, make their appearance in different parts of the body. Of the first ulcers, however, some heal up, while other tumours and ulcers appear in their vicinity, or in other parts of the body; and in this manner the disease proceeds, some of the ulcers healing up, at least to a certain degree, in the course of summer, and breaking out again in the succeeding spring; or it continues, by new tumours and ulcers succeeding them, in the spring season, making their appearance successively for several years.

"In this way the disease goes on for several years; but very commonly in four or five years it is spontaneously cured, the former ulcers being healed up, and no new tumours appearing; and thus, at length, the disease ceases entirely, leaving only some indelible eschars, pale and smooth, but in some parts shrivelled; or where it had occupied the joints, leaving the motion of these impaired, or entirely destroyed.

"Such is the most favourable course of this disease, and with us it is more frequently such than otherwise,—but it is often a more violent, and sometimes a fatal malady. In these cases, more parts of the body are at the same time affected, the ulcers also seeming to be imbued with a peculiarly sharp acrimony, and therefore becoming more deep, eroding, spreading, as well as seldomer healing up. In such cases, the eyes are often particularly affected. The edges of the eye-lids are affected with tumour and superficial ulcerations; and these commonly excite obstinate inflammation in the adnata, which frequently produces an opacity in the cornea.

"When the scrofula especially affects the joints, it sometimes produces there considerable tumours; in the abscesses following which, the ligaments and cartilages are eroded, and the adjoining bones are affected with a caries of a peculiar kind. In those cases, also, of more violent scrofula, while every year

produces a number of new tumours and ulcers, their acrimony seems at length to taint the whole fluids of the body, occasioning various disorders, and particularly a hectic fever, with all its symptoms, which at length proves fatal, with sometimes the symptoms of a phthisis pulmonalis.

"The bodies of persons who have died of this disease, shew many of the viscera in a very morbid state, and particularly most of the glands of the mesentery very much tumified, and frequently in an ulcerated state. Commonly, also, a great number of tubercles or cysts, containing matter of various kinds, appear in the lungs.

"Such (says Cullen, Par. 1750,) is the history of the disease; and from thence it may appear that the nature of it is not easily to be ascertained."

Treatment of Scrofula.—In describing the treatment of scrofula, I shall confine myself to that which is necessary in glandular affections and superficial ulcerations, as the diseases of the eye and the lungs have been already considered, and as those of the bones belong more to the province of surgery. Nevertheless, the constitutional treatment that I shall recommend, is equally applicable to all forms in which the disease occurs. We are told by almost every author, "to correct the bad habit of body," and improve the state of the constitution; but, as far as I am aware, we have never yet been told a proper method to bring about this desireable event, or, indeed, in what the bad habit of body consists. Mr Lloyd appears to me to have arrived nearer the truth in this respect than any other writer, but how much of his information has been drawn from Mr Abernethy, it is not easy for me to say.

"From repeated observation, however, (says Mr Lloyd,) I am convinced that there is always a disordered state of health, antecedent to those changes in the structure of parts, which are called scrophulous diseases, whether they are the effect of an acquired, or of an hereditary tendency; and, therefore, that our treatment must be always founded on the same principles, so, of course, it must be modified according to any particular circumstances which may attend particular causes."—(Page 26.) In other places of his work, he attributes this condition to more or less disorder of the digestive organs,

which, he says, will always be found to have existed for some time previous to the appearance of the disease in any particular part. This will be distinctly observed in the following paragraph, (at page 33.)—" From the nature of the constitutional disorder that attends and precedes this disease, we might be induced to believe that the disease entirely depended upon the disorder of the digestive organs, produced by various causes acting immediately on them, or mediately through the nervous system." Nevertheless Mr Lloyd has failed to shew what the true nature of the disorder is, or its precise seat, or, I may add, a more successful mode of treatment than his predecessors.

Dr Cullen states, in paragraph 1753, that " for the cure of scrofula, we have not yet learned any practice that is certainly or even generally successful. The remedy which seems to be the most successful, and which our practitioners specially trust to and employ, is the use of mineral waters; and, indeed, *the washing out, by means of these, the lymphatic system*, would seem to be a measure promising success."

A great number of specifics have been recommended for the cure of scrofula, the chief of which are bark, mercury, steel, mineral waters, barytes, lime water, and muriate of lime; but experience has shewn, that they are not worthy of much confidence, and some of them are represented to have been injurious. I was once very much amazed on hearing the answer given by a physician in my presence to a lady, who was desirous of knowing how long her little girl was to be compelled to take the solution of the muriate of lime. She stated that it was a very nauseous medicine, and that it had done the child no good, although she had taken it regularly for six months. The physician replied, that it would probably require three or four years before it would produce any beneficial effects, and that it must be regularly taken. Whether the physician spoke believing what he said to be true, I cannot pretend to say, but he looked grave enough.

Judging from the condition of the tongue, from the appetite, the increased thirst, the tumefaction of the abdomen, the degree of flatulency, the occasional pain in the belly, the irregularity of the bowels, and the appearance of the feculent matter,

I persuaded myself many years ago, that scrofulous affections were produced by disease in the digestive organs; and that that disease, whatever else it might be owing to, consisted principally in extensive irritation and inflammation of the mucous membrane. But I had little notion that frequently there were extensive ulcerations, till I was repeatedly convinced by dissection that it was the case,—since which time I have treated the disease in the following manner, and with much success.

If along with considerable gastro-intestinal irritation there be much fever at night, the strength being as yet unbroken, leeches ought to be applied to the abdomen, in such number as the symptoms, strength, and state of the constitution require; the bowels should be kept gently open, but drastic purgatives are on no account to be exhibited. Contra-irritation should be produced on the abdomen, by means of stimulating embrocations, or by what is still better, tartar-emetic ointment; and if an opiate be required to allay the irritation of the bowels, perhaps the best remedy will be a few grains of Dover's powder. It is probably in such circumstances that lime-water has been found beneficial, as it is a remedy of considerable power in this particular state of the mucous membrane. The diet must be rigidly attended to, and varied according to circumstances. When the tongue is loaded, and red round the edges, or universally red, the patient should be restricted to gruel, arrow-root, whey, and the like, as the digestive powers will not be able to assimilate any other kind of food. Soups, and animal jellies, which are so often had recourse to, prove very injurious, and aggravate the evils which it is our object to prevent. But when the marks of irritation in the stomach and bowels subside, when the tongue becomes clean, and the stomach more vigorous, a small quantity of chicken, or any other kind of meat, should be allowed, care being always taken that the patient shall take no more than the stomach can easily manage. If he do, the mischief will be soon announced by acidity, heart-burn, troublesome distention of the stomach, and a feverish night. For some days after such an occurrence, the articles of diet mentioned above should be used.

Calomel, or blue-pill, is to be administered only when the tongue is furred, although there can be no objection either to an occasional grain or two of calomel, or of blue-pill, to act as a gentle laxative.

The great error of the system pursued by Mr Abernethy and his disciples, arises from their giving the blue-pill indiscriminately, owing, perhaps, to their not being aware that the mucous membrane is the seat of the irritation, and that inflammation and ulceration sometimes take place.

The warm bath is to be used every second night, and on the alternate days the body may be sponged with warm water and vinegar, which last is the best remedy when the patient is either very weak, or when the health and strength are becoming restored. By and by, sponging with cold water, the shower-bath, or sea-bathing, may be substituted.

Air and exercise are indispensible parts of the treatment, but the patient should not be exposed to a raw, cold, damp atmosphere, at least till recovery is far advanced, and not even then, unless the body be sufficiently protected by warm clothing. Flannel should be worn next the skin, and during the winter and spring months, a leather jacket and drawers should be used in addition to, but outside of the flannel.

There can be no reasonable objection against the occasional employment of mineral acids and tonics, provided they be not persisted in too long, or exclusively trusted to as specifics, or used at times when leeching and contra-irritation are actually necessary.

I cannot avoid doing Mr Lloyd the justice of transferring the following judicious passage from his work to these pages: —"When there is what is called a weak stomach, with loss of appetite, I have often seen the different tonics, as cinchona, steel, and the mineral acids, of the greatest service; but I am sure, as I have said before, that they possess no specific power over scrophula. Moreover, I feel certain, that a great deal of mischief is often produced by the exhibition of these medicines, in conjunction with a stimulating diet, and that diseases which might otherwise be speedily relieved, are by these means rendered fatal to the patients. Too often have I seen medical men, when consulted about children with swelling of the

glands of the neck, or other scrophulous affection, at once declaring them in a delicate state of health, prescribe a generous diet, as full meals of meat, with porter and wine, with the use of bark, steel, or some other strengthening medicines as they are called, merely because the disease was scrophula. Too often have I seen this plan pursued in cases where, on more accurate examination, I have found the patient requiring a plan of treatment directly the reverse."—(Page 41.) And in another place, alluding to the same treatment, he says, "It is true, however, that when children are first put on this treatment, they appear to the common observer immediately to improve in health. A species of fever is produced, the cheeks become fuller and flushed, and the exhilarating powers of the stimuli heighten the spirits of the child, so that the delighted mother feels greater confidence in her doctor, and expects soon to see her child perfectly recovered. But too soon, however, these favourable appearances are generally proved to be fallacious, by the discovery of some fresh swelling, or by the child evidently becoming weaker and more irritable. It is equally true, too, that when children are put on a different plan of treatment, they often, for the first ten days or a fortnight, become paler, and perhaps weaker; but after this period, if there be no important visceral disease, it will always be found that, the irritation of the disease subsiding, they gradually recover strength and flesh, though perhaps taking only half the food which they were accustomed to before."—(Page 42.)

These passages merit the greatest attention from those practitioners who still follow the line of treatment which Mr Lloyd condemns; and for further particulars, I beg to refer the reader to the chapter on Tabes Mesenterica, in the first volume of this work.

It is now necessary that I should notice a remedy which has been found of great service in reducing enlarged glands, provided their structure be not destroyed by diseased action. This remedy is iodine, and its various preparations, the effects of which are very wonderful in bronchocele, although its administration in scrofulous affections of the glands has not been attended with the universal success which was at one time an-

ticipated. Nevertheless, it is a preparation which is in many instances highly serviceable, but which requires judgment and discrimination. Iodine is of no service if there be much gastro-intestinal irritation, or a loaded tongue, or if the gland be in a state of inflammation. Hence it is that it has been found so beneficial in chronic indolent swellings, as in bronchocele, and that its operation has been observed in many cases to be more rapid when its use is conjoined with local bleeding. Preparations of iodine are to be used in the manner already described when treating of diseases of the uterus.

Local Treatment of Scrofulous Affections of the Glands.—It is to be apprehended that serious injury has been inflicted on individuals, by the absurd plan of trying to "put back" glandular tumours, by cold applications of various kinds. When the tumours are small, and not painful, little need be done except covering the parts with flannel, or rubbing them with an ointment containing iodine. But should there be any inflammation, warm fomentations, or poultices, ought to be applied, and an opening made as soon as fluctuation is discovered. Dr James Hamilton, jun., the professor of midwifery in this University, has great merit for being among the first who insisted upon the advantage of making an early opening; and he used to take particular pains to shew, that so far from leaving a mark, an early puncture was the best means for preventing such a disagreeable circumstance. By making the incision, we shall prevent the formation of those small apertures which so frequently run into extensive ulcerations; and we always find, that the longer the part is inflamed, and the more distended it becomes, the subsequent ulcerations are more extensive, indolent, and difficult to heal. When the gland is deep-seated, there is a greater necessity for letting out the matter. But should the glandular swelling be very much inflamed and tender from the first, or become so at any time before matter is formed, leeches are to be applied to moderate the violence of the inflammation, and prevent the abscess from becoming so large as it would undoubtedly do if left to run its course.

In the event of our not being called till ulceration has taken place, besides attending to the constitutional treatment already

so fully described, we must have recourse to the application of various remedies. Some cases of indolent ulcer assume a healing tendency under the application of the black-wash, or a solution of the acetates of lead or zinc, but it should be applied warm, and not persisted in for more than two or three days. In other cases, whether the sores are either indolent or irritable, lunar caustic will be found to have the best effects; and the reason why it has failed so often is, that proper constitutional remedies have not been employed at the same time. In some cases, immediate benefit will be derived from the application of an ointment of the acetate of copper, in the proportion of two, four, or six grains of the acetate to a dram of simple cerate. From experience, I can speak highly of the effects of pressure. In a case of deep and extensive scrofulous ulceration of the mamma, of above fourteen years standing, the part assumed a healing tendency in a few days after the application of a graduated pressure, and was completely cicatrized in rather less than six weeks; and I could mention many other successful cases.

CHAP. IV.

DROPSY.

General Remarks.

An unusual collection of serous or watery fluid in any part of the body, is called a dropsy; and is observed to take place in the cellular tissue, and in serous cavities. Hence we find it in the general cellular membrane, which is extended over the surface of the body,—in the lungs, where the air-cells and blood-vessels are enveloped by a loose cellular tissue,—within the membranes of the brain,—in the pericardium,—and in the cavities of the pleura, and peritoneum. Dropsy has therefore received distinct appellations, according to the locality of the effusion; and in noticing these circumstances, Dr Cullen observes, (Par. 1645,) that "although the particular instances of such collection are to be distinguished from each other according to the parts they occupy, as well as by other circumstances attending them; yet all of them seem to depend upon some general causes, very much in common to the whole. Before proceeding, therefore, to consider the several species, it may be proper to endeavour to assign the general cause of dropsy." I shall pursue the same course as Dr Cullen, who, although he seems to have directed considerable attention towards the acquirement of an intimate knowledge of the morbid alterations found in different organs in dropsy, yet was too anxious to insist upon a loss of tone in the absorbent extremities of the lymphatics, and laxity of the exhalent vessels, as

causes, to allow sufficient influence to internal organic disease, or to a general plethora or inflammatory diathesis.

" In persons in health (says Dr Cullen,) a serous or watery fluid seems to be constantly poured out, or exhaled in vapour, into every cavity and interstice of the human body capable of receiving it; and the same fluid, without remaining long, or being accumulated in these spaces, seems constantly to be soon again absorbed from thence by vessels adapted to the purpose. From this view of the animal economy, it will be obvious, that if the quantity poured out into any space happens to be greater than the absorbents can at the same time take up, an unusual accumulation of serous fluid will be made in such parts; or though the quantity poured out be not more than usual, yet if the absorption be any ways interrupted or diminished, from this cause also an unusual collection of fluid may be occasioned.

" Thus in general, dropsy may be imputed to an increased effusion, or to a diminished absorption." (Par. 1645.)

He considered that increased effusion may happen either from a preternatural increase of the ordinary exhalation, or from the rupture of vessels carrying, or of sacs containing, serous or watery fluids. The ordinary exhalation may be increased from an interruption which resists the free passage of the blood from the arteries into the veins, which interruption increases the force of the arterial fluids in the exhalents, from which the effusion takes place. This interruption may be owing to the following circumstances; disease of the heart, particularly certain conditions " in the right ventricle of the heart itself," which prevents it from receiving the usual quantity of blood from the veins—to obstructions in the vessels of the lungs, preventing the entire evacuation of the right ventricle, and thereby hindering its receiving the usual quantity of blood; " thus, (says he,) a polypus in the right ventricle of the heart, and the ossification of its valves, as well as all considerable and permanent obstructions in the lungs, may be considered as causes of dropsy." (Par. 1649.)

The only additions which can be made to these last observations, are, that it is now well known, every kind of organic disease of the heart, and of its valves, may give rise to drop-

sical effusion, if the patient be not cut off early in the complaint; and there can be no doubt also, that all considerable and permanent obstructions to the circulation in the lungs will occasionally give rise to dropsy; but, in a practical point of view, it is important to know that chronic bronchitis is the diseased condition of those organs on which it most frequently depends. But in either of these cases, there is something more to account for the dropsical effusion, than the mere obstruction to the circulation,—the functions of the lungs are embarrassed, and the blood itself does not undergo those changes which are necessary to constitute health.

Dr Cullen supposed that "it may serve as an illustration of the operation of these general causes, to remark, that the return of the venous blood is in some measure resisted when the posture of the body is such as gives occasion to the gravity of the blood to oppose the motion of it in the veins, which takes effect when the force of the circulation is weak; and from whence it is that an upright posture of the body produces or increases serous swellings in the lower extremities." (Par. 1650.) It appears more probable, however, that the collection of serum in the lower extremities is rather to be attributed to the fluid gravitating from superior parts to those most depending, than to an increased effusion from the vessels arising from the posture of the body, and the weakness of the circulation.

"Not only (continues Dr Cullen) those causes interrupting the motion of the venous blood more generally, but farther, the interruption of it in particular veins, may likewise have the effect of increasing exhalation, and producing dropsy. The most remarkable instance of this is, when considerable obstructions of the liver prevent the blood from flowing freely into it from the vena portarum and its numerous branches, and hence these obstructions are a frequent cause of dropsy." (Par. 1651.)

"Scirrhosities of the spleen and other viscera, as well as the scirrhosity of the liver, have been considered as causes of dropsy; but the manner in which they can produce the disease, I do not perceive, except it may be when they happen to be near some considerable vein, by the compression of

which they may occasion some degree of ascites; or, by compressing the vena cava, may produce an anasarca of the lower extremities."

Dr Cullen also thought, that even in smaller vessels, the interruption to the motion of the blood, in particular veins, has a similar effect: "Thus a polypus formed in the cavity of a vein, or tumours formed in its coats, preventing the free passage of the blood through it, have had the effect of producing dropsy in parts towards the extremity of such veins." (Par. 1653.)

"But the cause most frequently interrupting the motion of blood through the veins, is the compression of tumours existing near to them; such as aneurisms in the arteries, abscesses, and scirrhous or steatomatous tumours in the adjoining parts. To this head may be referred, the compression of the descending *(ascending)* cava by the bulk of the uterus in pregnant women, and the compression of the same by the bulk of water in the ascites; both of which compressions frequently produce serous swellings in the lower extremities." (Par. 1654.)

The statements contained in the above paragraphs appear to me to be far too mechanical. When an obstruction takes place in the liver, it proceeds either from abscess, tubercular formation, or scirrhous degeneration; consequently, the functions of the organ must be embarrassed to a greater or less extent; the mesenteric blood which passes through it, cannot undergo the necessary changes, and must therefore operate prejudicially on the system at large. Besides, if dropsy were owing to the mere mechanical obstruction, preventing the blood from flowing freely through the vena portarum, ascites only should be the consequence, and not general dropsy. With respect to Dr Cullen's observations concerning the compression produced by the gravid uterus, and that occasioned by the bulk of water in ascites, as being the frequent causes of œdema in the lower extremities, it may be further remarked, that in many cases, the embarrassed functions of the kidneys will be found to be the cause of the effusion; and that by increasing the flow of urine in the former, the swelling in the extremities will permanently disappear, although the uterus goes on for months increasing in bulk as well as in weight.

In some of the most exquisite examples of dropsical effusion, confined to the cavity of the abdomen, which have fallen under my observation, no œdema of the lower extremities took place. I have often made a similar remark, in cases of enlarged ovaria, and other uterine tumours, in many of which the pressure must have been more considerable than either during gravidity or ascites.

Dr Cullen seems to have forgotten, that, in the case of mere obstruction in any one particular vein, unless it be the trunk leading from an extremity, the blood which ought to pass through it will find its way by some other route. The crural and iliac veins have been found not only obstructed, but diseased, in cases of *phlegmasia dolens*, in which, instead of œdema of the limb, a general inflammatory affection is produced in it; and although the nature of the disease has not yet been fully investigated, all the phenomena in the limb are different from those accompanying œdema.

" It may be supposed (says Dr Cullen, par. 1655,) that a general preternatural plethora of the venous system may have the effect of increasing exhalation; and that this plethora may happen from the suppression of fluxes, or evacuations of blood, which had for some time taken place in the body, such as the menstrual and hœmorrhoidal fluxes. A dropsy, however, from such a cause, has been at least a rare occurrence, and when it seems to have happened, I should suppose it owing to the same causes as the suppression itself, rather than to the plethora produced by it.

" One of the most frequent causes of an increased exhalation, I apprehend to be the laxity of the exhalent vessels. That such a cause may operate, appears probable from this, that paralytic limbs, in which such a laxity is to be suspected, are frequently affected with serous, or, as they are called, œdematous swellings.

" But a much more remarkable and frequent example of its operation occurs in the case of a general debility of the system, which is so often attended with dropsy. That a general debility does induce dropsy, appears sufficiently from its being so commonly the consequence of powerfully debilitating causes, such as fevers, either of the continued or intermittent kind,

which have lasted long; long-continued, and somewhat excessive evacuations of any kind; and, in short, almost all diseases that have been of long continuance, and have at the same time induced the other symptoms of a general debility.

"Among other causes inducing a general debility of the system, and thereby dropsy, there is one to be mentioned as frequently occurring, and that is, intemperance in the use of intoxicating liquors; from whence it is that drunkards of all kinds, and especially dram-drinkers, are affected with this disease.

"That a general debility may produce a laxity of the exhalents, will be readily allowed: and that by this especially it occasions dropsy, I judge from hence, that while most of the causes already mentioned are suited to produce dropsies of particular parts only, the state of general debility gives rise to an increased exhalation into every cavity and interstice of the body, and therefore brings on a general disease."

It appears to me, that the illustrations which Dr Cullen has used in proof of the laxity of the exhalent vessels, which he considers the chief circumstance in the pathology of dropsy, and therefore terms the *hydropic diathesis*, are most unfortunate. If they were correct, we should invariably see paralytic limbs œdematous, which is far from being the case. With respect to fevers, whether continued or intermittent, which have lasted long, we may certainly expect occasionally to see dropsical affections, not so much from debility, however, as from changes in the structure of internal organs: and, lastly, as to intemperance, and especially dram-drinking, these habits no doubt produce general debility, and likewise dropsy, in consequence of the diseased conditions of the stomach, liver, or kidneys, which they occasion.

Dr Cullen also considers that dropsy may be produced by a preternatural abundance of serum in the blood-vessels, which may be sometimes owing to drinking a large quantity of very cold water, or to absorption from a moist atmosphere, or to a fault in the digestive and assimilating powers in the stomach and other organs. Besides these, he mentions other causes which are more likely to produce inflammation than dropsy,—as the rupture of the thoracic duct, and a consequent

effusion of chyle and lymph into the thorax; and a rupture, or erosion of the kidneys, ureters, and bladder of urine,—"whereby the urine has been poured into the cavity of the abdomen, and produced an ascites." (Par. 1661.)

From these theories I turn with pleasure to the pathological work of Dr Blackall, and the still more useful and splendid production of Dr Richard Bright of London.

Dr Blackall seems to have been the first author who drew the attention of the profession in a particular manner to the coagulable state of the urine, and to the prevalence of an inflammatory diathesis in some kinds of dropsy. He proved by dissection, that the pleura, the peritoneum, and pericardium, are often unequivocally inflamed, covered with false membrane, and adhering to adjacent parts;—that the liver and kidneys are frequently enlarged, and otherwise diseased;—that the lungs sometimes shew marks of inflammation;—that the lymphatic vessels themselves are found unusually thickened and distended in dropsical bodies, so much so, that he alleges such subjects are much preferred for anatomical preparations;—and, lastly, that the cellular membrane in dropsical parts, frequently presents an unusual resistance to the knife, and that the cells contain an effusion somewhat transparent and coagulated.

Dr Blackall thinks that the inflammatory nature of dropsy, is so far made out by the following facts:

"1. The serum of the affected cavities has been often found opaque in various degrees, discoloured, and containing pieces of lymph; and in one instance, even the fluid of the cellular membrane coagulated spontaneously.

"2. In addition to these appearances of the dropsical fluid, which argue a secretion often different from that of mere relaxation, the membranes likewise are sometimes greatly inflamed and disfigured.

"3. Many of the remedies are antiphlogistic; and there is a certain stage in almost every case of the disease, in which tonics do material injury.

"4. The frequent buffiness of the blood, and that too sometimes of a peculiar kind, is not to be overlooked in this investigation; and it is worthy of much notice, that whilst the

blood and the secreted serum are accused of being too watery, the urine, which commonly contains little or no albumen, is loaded with it in a great and unnatural proportion. This phenomenon could hardly be expected, as the result of too thin a condition of the fluids, and a deficiency of coagulable matter; on the contrary, it is a very strong proof, if not of its excess, at least of some newly-acquired properties with regard to separation, and of an altered texture. I add, as a fact on which we cannot too often reflect, that where the urine is most loaded, coagulates by the lowest heat, and most firmly, the blood is likewise most buffy, and the whole system bears the greatest marks of inflammation.

That part of Dr Bright's work relating to dropsy, is divided into three parts. In the first, he gives twenty-four cases of dropsy illustrative of the coagulability of the urine, with a number of very interesting dissections in which a peculiar diseased condition of the kidneys was discovered. In the second, eleven cases illustrative of the disease of the liver connected with dropsical effusion are noticed. And in the third, four cases illustrative of some of the appearances observable where the disease is connected with the viscera of the thorax.

In the first part, Dr Bright, besides mentioning the great and tangible causes of dropsy—as diseases of the heart, lungs, and liver; the pressure of tumours; the obliteration of veins; and certain inflammatory appearances of the pleura and peritoneum—makes the following observations respecting the alteration of structure in the kidneys, and its connexion with albuminous urine: "There are other appearances to which I think too little attention has hitherto been paid. They are those evidences of organic change which occasionally present themselves in the structure of the kidney; and which, whether they are to be considered as the cause of the dropsical effusion, or as the consequence of other disease, cannot be unimportant. Where those conditions of the kidney to which I allude have occurred, I have often found the dropsy connected with the secretion of albuminous urine, more or less coagulable on the application of heat. I have in general found that the liver has not in these cases betrayed any considerable marks of disease, either during life, or on the examination after

death, though occasionally incipient disorganization of a peculiar kind has been traced in that organ. On the other hand, I have found, that when the dropsy has depended on organic change in the liver, even in the most aggravated state of such change, no diseased structure has generally been discovered in the kidneys, and the urine has not coagulated by heat. I have never yet examined the body of a patient dying with dropsy, attended with coagulable urine, in whom some obvious derangement was not discovered in the kidneys. Whether the morbid structure by which my attention was first directed to this subject, is to be considered as having in its incipient state given rise to an alteration in the secreting power, or whether the organic change be the consequence of a long continued morbid action, may admit of doubt; the more probable solution appears to be, that the altered action of the kidney is the result of the various hurtful cases influencing it through the medium of the stomach and the skin, thus deranging the healthy balance of the circulation, or producing a decidedly inflammatory state of the kidney itself; that when this continues long, the structure of the kidney becomes permanently changed, either in accordance with, and in furtherance of, that morbid action; or by a deposit which is the consequence of the morbid action, but has no share in that arrangement of the vessels on which the morbid action depends.

"The observations which I made respecting the condition of the urine in dropsy, are in a great degree in accordance with what has been laid down by Dr Blackall in his most valuable treatise.

"Where anasarca has come on from exposure to cold, or from some accidental excess, I have in general found the urine to be coagulable by heat. The coagulation is in different degrees; it likewise differs somewhat in its character; most commonly when the urine has been exposed to the heat of a candle in a spoon, before it rises quite to the boiling point it becomes clouded, sometimes simply opalescent, at other times almost milky, beginning at the edges of the spoon, and quickly meeting in the middle. In a short time the coagulating particles break up into a flocculent or a curdled form, and the quantity of this flocculent matter varies from a quantity scarcely

perceptible floating in the fluid, to so much as converts the whole into the appearance of curdled milk. Sometimes it rises to the surface in the form of a fine scum, which still remains after the boiled fluid has completely cooled. There is another form of coagulable urine, which in my experience has been much more rare; when the urine, on being exposed to heat, assumes a gelatinous appearance, as if a certain quantity of isinglass had been dissolved in water. I have indeed met with this in one or two cases only.

"During some part of the progress of these cases of anasarca, I have in almost all instances found a great tendency to throw off the red particles of the blood by the kidneys, betrayed by various degrees of hæmaturia from the simple dingy colour of the urine, which is easily recognized; or the slight brown deposit, to the completely bloody urine, when the whole appears to be little but blood, and when not unfrequently a thick ropy deposit is found at the bottom of the vessel."

And again he states: "In all the cases in which I have obtained the albuminous urine, it has appeared to me that the kidney has itself acted a more important part, both functionally and organically, than has generally been imagined."

Case I.—*In the first case*, published by Dr Bright, of anasarca, with coagulable urine, there were marks of pericarditis; the heart was large and firm; a triangular and solid deposit of bone was found in the angle between two of the aortic valves; the left lung adhered, and was in every part converted into a grey hepatized structure, very few portions admitting partially the entrance of air; the right lung was œdematous, and surrounded but not compressed by effusion of serum; there were some marks of former inflammation on the peritoneal coat of the liver; the spleen was dark-coloured, with a slight adventitious covering like that on the liver. The KIDNEYS were completely granulated throughout; externally the surface was rough and uneven; internally all traces of the natural organization nearly gone, except in the tubular parts, which were of a lighter and more pink colour than usual. The granulated condition of the kidney was in an advanced stage of the disease.

Case II.—On dissection, the KIDNEYS were both found of unusual size, certainly half as large again as most commonly seen, but the right was the largest. On an external view they were obviously granulated, with a large proportion of yellow granular matter; on taking off the proper tunic, this was more distinctly seen; and on cutting in, the whole of the cortical structure seemed to be converted into a yellow substance in appearance like fat in many parts; though in other parts the change had not gone so far. In this case the urine was coagulable.

Case III.—In this case, which was connected also with some degree of coagulability of the urine, the KIDNEYS were found in the following condition. Externally, somewhat mishapen, from the tubercular character of their structure: the form did not depend upon any disease analogous to true tubercles, but upon a general change in the substance of the kidney, some parts projecting, of a white colour upon a pinkish ground, the small star-like vessels running over them. The size was but little altered; the proper tunic adhered very closely. Internally, the whole cortical structure was of a pretty uniform yellowish colour, with many small, opaque, and indistinct yellow spots.

Case IV.—The urine coagulated by heat, was of a brown colour, apparently from a mixture of the red particles of the blood; and the KIDNEYS afforded, on dissection, throughout the whole cortical structure, a curious specimen of disease, apparently the commencement of granulation; they were rather large and soft; their general colour was pale, and on taking off the tunic, the whole surface was seen speckled with minute yellowish bodies; on making a longitudinal section, the same bodies were seen pervading the whole cortical substance, assuming, near the surface, somewhat of the striated arrangement observed in the structure of the kidney at that part, and irregularly disseminated through the other parts.

Case V.—The urine coagulated strongly by heat; and the KIDNEYS were found large, very dark on their upper surface, on the lower, mottled with yellow; no elevated granulation

to be seen externally, but many small yellow specks. Internally, the substance was remarkably pale, and had assumed the appearance of a fatty substance, with some traces of a granulated structure throughout: this, however, depended in part on a flaky opaque matter thickly disseminated; and this same appearance became very obvious over the whole external surface after the kidney had been kept in pure water for a day or two.

Case VI.—The KIDNEYS afforded very fine specimens of the confirmed granulated change. They were rather large and bulky; the granulation was seen externally over every part of the surface, even before the tunic was removed. The granular bodies were small, of a yellow colour, and the surrounding substance more pink. On cutting longitudinally through the kidney, it was seen that the whole cortical substance was composed of the same altered structure, and the striated arrangement near the surface was almost lost. Dr Bright gives no account of the state of the urine, as he did not see the patient.

Case VII.—The urine was scanty, and coagulated very considerably on the application of heat, becoming first milky, and then loaded with a great number of flakes; and on dissection the KIDNEYS were found small, rather lobulated, of a semi-cartilaginous hardness, completely granulated; the small whitish or yellow granules projecting with red intervening spaces, so as to form a scabrous surface, both appearing and feeling rough. On making a longitudinal section, the kidney cut with the resistance of a scirrhous gland; the tubular part was drawn much nearer to the surface than is natural; the cortical part indistinctly granulated throughout, of a greyish drab, mixed with purple.

Case VIII.—The urine was of a deep yellow colour, clear, and coagulated in a very marked manner by heat, assuming a white curdled form; and on dissection the KIDNEYS were observed to be very small, and hard in consistence, feeling almost cartilaginous; their prevailing colour was purplish;

on their external surface they were distinctly granulated in texture; and on making a longitudinal section, the same was perceptible throughout; it was remarkable that the cortical portion was exceedingly thin, so that the distance between the termination of the tubular part and the external surface was much less than in the healthy organ.

Case IX.—The urine was scanty, and when first passed, was clear, but of a dingy brown colour; it became turbid on cooling, grew clear on the application of a gentle heat, and by raising the temperature nearly to the boiling point, it coagulated in a very marked degree, so that it put on the appearance of thick treacle-posset. On examination of the body after death, the KIDNEYS presented most decidedly the granulated structure; this was somewhat marked externally, the lighter points of the granulation being smaller than Dr B. has often observed; and on cutting into the substance, it was seen that the natural structure was destroyed throughout the whole cortical part, which was mottled as in the two last cases; but this morbid structure appeared in its most advanced stage around the tubular parts.

Case X.—At first the urine was scanty, and coagulated decidedly, though not to the extent usually observed, and in the progress of the disease it always continued very scanty. Sometimes it was tolerably clear, but became turbid on cooling; at other times it bore the dingy colour, which usually denotes the presence of blood: almost always it retained its coagulability, but in general this was limited to a dense deposit of brownish flakes, the whole fluid not becoming milky or curdled. On dissection, the KIDNEYS were contracted and hard, and on removing their tunic, the surface was scabrous; but the projecting roughness was of a pretty uniform grey purplish colour, and the same was observable on making a section.

Case XI.—The KIDNEYS were most decidedly diseased. They did not feel so firm as natural, were almost white in external appearance, rather large and lobulated, without any signs

of granulation, and only showing a few star-like vessels distributed on the surface; otherwise of nearly one even surface, and on most minute inspection no mark of structure, as usually seen on the surface of the healthy kidney, was discoverable. On making a complete longitudinal section, the same grey-white colour pervaded all the cortical part, with little sign of natural structure; the faint appearance which did exist, preserved those marks of lines proceeding towards the surface, which are often more evident in the healthy kidney. The tubular part was also faintly coloured. In this case Dr Bright could not ascertain the state of urine.

Case XII.—The urine was scanty, and of a slightly dingy colour, coagulating decidedly by heat; and on dissection the KIDNEYS were found disorganized throughout, smooth in their external texture, rather lobulated, of a pale yellow colour, with a few superficial vessels; and on being examined internally, the same grey yellow colour pervaded the whole cortical part, with some more opaque yellow spots irregularly intermixed. The tubular structure pale, and indistinct; in a word, approaching more to the condition of the kidneys mentioned in the last case, than any others.

Case XIII.—The urine coagulated, was turbid, and became dingy as from a slight admixture of blood. On dissection the KIDNEYS very pale, and rather soft, discovered externally nothing but the natural structure, rather more marked than usual, but internally was plainly to be traced a motley granulation, very small and faint in its colour and markings.

Case XIV.—The urine coagulated by heat more or less during the course of the disease, had a dark brown tinge, being a mixture of the red particles, and at length became quite red, depositing a quantity of ropy mucus. On dissection the KIDNEYS presented a very curious appearance. They were easily slipped out of their investing membrane, were large, and less firm than they often are, of the darkest chocolate colour, interspersed with a few white points, and a great number nearly black; and this, with a little tinge of red in

parts, gave the appearance of a polished fine-grained porphyry or green stone. On cutting longitudinally into the kidney, this structure and these colours were found to pervade the whole cortical part; but the natural striated appearance was not lost; and the external part of each mass of tubuli was peculiarly dark; the whole mammillary processes were also of a dark colour. On being cut through and left for some time, a very considerable quantity of blood oozed from the kidney, shewing a most unusual accumulation in the organ; and indeed it seemed to be from this cause that the peculiar appearance and colour arose; the very dark spots being the effect of blood either extravasated, or in vessels greatly gorged.

The immediate cause of death in this individual seems to have been *œdema glottidis*.

Having now extracted from Dr Bright's work the principal diseased appearances in the kidneys, I shall proceed to give short extracts from the second part, of some of the appearances of the liver and gall-bladder, connected with dropsical effusion.

"Although (says Dr Bright,) I am strongly impressed with the belief, that many cases of dropsy have been supposed to depend on disease of the liver, when the kidneys have, in fact, been chiefly in fault; yet there is little doubt, that in many other cases the liver is the real cause of the dropsical effusion, frequently shewing most extensive disease when the kidneys are quite healthy.

"I have already remarked, when relating the cases of anasarca, connected with organic disease of the kidneys, that the liver has seldom been perfectly healthy, though the deviation from the natural structure has often been so slight, as to render it doubtful whether it should be noticed amongst the morbid appearances; and in describing this state, I have sometimes used the expression, that the liver shewed a tendency to granulation. The fact is, that the liver, in these cases, has usually preserved its natural figure; the acute margin has been perfect, and the general size has not been augmented; the peritoneum has been quite transparent, and attached only in the ordinary degree to the viscus; the texture of the liver has neither been unnaturally firm, nor morbidly flaccid; but

on examining the surface, it has been evident that the colour was less uniform than in perfect health; the whole was marbled, consisting of very small light spots in a darker ground; but on making a section perpendicular to the surface, though the same general variety of colour has been observed, yet in some parts of the section it has been doubtful whether the darker or the lighter part should be considered as the groundwork: in general, however, by attentive observation, it will be found, that in the centre of the lighter spots small depressions or openings are visible, and that the darker parts appear to be the connecting medium of the lighter parts, which seem to be the acini of the glandular structure. Although, in most cases, these appearances scarcely attract attention, yet in other cases they become more obvious, either the white portions becoming larger in proportion, or the whole viscus appearing to have lost a little of its natural pliability, to have become hard, and to break down with a slightly granulated fracture. I have scarcely, in any instance, seen this derangement of the liver go farther, except in the case of STEWART, where most decided morbid change had taken place. The liver had assumed more of a lobulated form than in health, and the acute margin had become rounded. In all these cases, the secretion of bile is tolerably natural, the gall-bladder being well supplied with bile of a sufficiently dark yellow colour. Besides this more common appearance of the liver in the class of dropsies of which I have been treating, the liver has occasionally deviated a little in its consistence from its natural state, being either too firm or too flaccid; but where this has been the case, the deviation has only been such as is constantly occurring in cases where neither effusion, nor any other marked symptom of disease, has arisen during life. From the very prominent place which the disease of the kidney has appeared to hold in these cases, I have been inclined to consider the derangement of the liver as a secondary effect, or at least a subordinate disease, though not impossibly the state of both these organs depends on the same general constitutional affection; and I have sometimes even thought that the tendency to granulation, where it existed, maintained a certain relation in its progress to the disease of the kidney.

"There are, however, hepatic derangements, unaccompanied by obvious disease of other organs, which may probably with justice be considered as laying the foundation of dropsical effusions. And of these, I shall now detail a few examples; in which it will be seen, that the morbid appearances presented by the liver are very various, arising, as it would seem, from morbid actions, essentially differing from each other."

Case XXV.—"Liver contracted, and throughout of a morbid structure, apparently by the deposition of minute portions of a yellow matter. The surface, covered by a very fine peritoneum, quite transparent, even more thin than usual, presenting a rough granular, and therefore uneven surface, of what might be called liver-coloured red and yellowish grey. On being cut into, the same structure of a less red colour pervaded the whole. The liver was thicker and rounder than natural, and rather smaller; and on pressure broke down easily, with a brittle or crisp fracture, uneven and granular. The gall-bladder, opaque and thick, contained the usual quantity of bile. The common duct was pervious, but at its entry into the duodenum, was contracted in a nipple-like projection, with an orifice not much larger than to admit the point of a pin. On opening the gall-bladder, and letting out the deep-coloured viscid bile with which it was filled, a number of small yellow bodies, larger than millet-seeds, and soft, adhered to the villous surface of the gall-bladder, chiefly on the side where it is attached to the liver." The urine in this case did not coagulate on the application of heat.

Case XXVI.—"The liver externally tuberculous, of a light yellow colour nearly approaching to that of a lemon, with deep fissures in the surface, apparently arising from partial contraction taking place in the substance of the organ, and partly depending on the contraction of the thin adventitious membrane which covered the peritoneum. The whole liver was enlarged about one-third above its natural size; it was greatly increased in firmness and specific gravity; it felt firm and hard; cut with considerably more resistance than boiled

udder, to which it might be said to bear some general resemblance; and on examination, its whole structure was composed of bright yellow granules distributed in a transparent pinkish ground, the two parts bearing about an equal proportion; and although on the surface the pinker part appeared the basis, yet in the section the yellow rather seemed to be so. The two parts did not separate, or in this respect resemble one body imbedded in another; nor was there any appearance of tubercular structure in the substance of the organ. The gall-bladder very much contracted, containing a small quantity of dirty-looking bile." Urine not coagulable by heat.

Case XXVII.—"The substance of the liver hardened throughout, the structure nearly resembling scirrhus, with bands of thickened cellular membrane like ligamentous matter pervading every part, and in some parts forming one-third of the whole structure; although when seen externally the liver appeared tuberculous and knotty, yet when examined internally there were no tubercles. The outside was smooth though not even, and on pressure between the fingers, gave almost the resistance of cartilage. A piece of the substance taken without the peritoneal and adventitious membrane, was still so hard as not to be broken down by the same pressure; there were some adhesions, old but web-like, between the liver and diaphragm. The gall-bladder was contracted, and covered by the false membrane; it contained bright yellow bile, and the ducts were pervious." Urine not noticed.

Case XXVIII.—"The liver was drawn up under the diaphragm, to which it was fixed by a firm old adhesion; it was stiff and rigid, and being covered with the adventitious membrane, bore no resemblance to a natural liver. It was contracted in size, and throughout every part extremely hard, so as to cut with difficulty, and almost with a cartilaginous resistance. It was of a speckled yellow green, with lighter bands running through it, but these bearing a small proportion to the whole. It was compared by some to a decomposing coarse-grained sand-stone, and would not break down under

any ordinary pressure of the fingers. The gall-bladder of tolerable size, and moderately filled with viscid yellow bile, which, when seen in the mass, appeared of its full dark colour; indeed, I should say that it was by no means unhealthy bile. There were five gall-stones in the bladder, the size of peas, which appeared like inspissated bile." In this case, there was evidently chronic peritonitis, and the omentum was dense and hard. The kidneys were healthy in structure." The urine did not coagulate by heat.

Case XXIX.—"The liver was found to have undergone nearly the same change as that described in Case XXVII. The kidneys were large, and in a very unhealthy condition, quite dissolved and watery in their texture, with light yellow stripes through the cortical substance. The urine was high-coloured, coagulating a little on the application of heat, so as to become for a short time turbid, and then let fly a flaky deposit, leaving the fluid clear."

Case XXX.—"The liver was drawn up almost entirely within the concavity of the diaphragm, to which it was attached by several very firm cord-like organized adhesions. This organ throughout its whole substance, was quite changed in structure, as if in progress of becoming uniformly tubercular; its whole structure changing into small round masses of the size of large peas, not much altered from its natural colour, but capable of being picked out, leaving imperfect cavities. The gall-bladder was very small, and at least twenty times its natural thickness, opaque yellow, but containing a small quantity of bile; the ducts pervious. There was besides considerable disease of the peritoneum and intestines, and the spleen was four times the natural size. The kidneys, though large, were not unhealthy." The state of the urine is not noticed.

Case XXXI.—"The liver was rather contracted in size, of a yellowish drab-colour externally, the whole granulated in appearance, so as nearly to resemble a coarse-grained sandstone, of which the component granules projected slightly on

the surface, and were generally about the size of small lupine seeds, varying a little in colour,—grey, brownish, and yellow. The liver was somewhat tough, and gave considerable resistance to the knife: the altered structure pervaded the whole, and the rounded bodies were formed into clusters, many of which were of a light yellow colour; and this was particularly remarkable near the acute margin. The gall-bladder was distended with watery bile. The kidneys had a few vesicles in the substance of the cortical portion; otherwise their structure and consistence were perfectly healthy: and on stripping off the tunic, they presented a smooth and yielding surface." The state of the urine is not noticed.

Two or three other cases are subjoined in Dr Bright's work, but I shall pass them over. I hope the appearances already described, of alteration in the structure of the kidneys and liver, will be a guide to my readers in making similar investigations; and will induce them to peruse the work of Dr Bright, from which they will derive much pathological and practical information.

My attention has long been attracted to diseases of the liver, peritoneum, heart, and lungs, in connexion with dropsy; and my portfolio contains many drawings in illustration of these appearances; but it is only within these few years, since Dr Bright's work appeared, that it was directed to the morbid structure of the kidneys. Since the publication of the last edition of this work, several cases have fallen under my observation, in which the kidneys presented the exact appearances so beautifully delineated by Dr Bright. Some of these cases were dropsical, others not. These disorganizations of the kidneys are for the most part, however, connected with dropsical effusions, and are announced by scanty secretion of urine of low specific gravity, containing a large quantity of albumen and a diminished proportion of urea. At the same time, I must state the fact, that I have several times seen the urine coagulable by heat, the specific gravity low, (109°,) along with general dropsical diathesis, and yet the patients recovered perfectly; which could not have taken place had the kidneys been disorganized. I cannot but conclude, therefore, that the urine may be in this condition, and dropsical

effusions may take place from functional disorder of these organs, as well as from organic lesions.

The profession owes much to the labours of Dr Bright, and it is deeply to be deplored that other hospital physicians, with similar advantages, have not made the same good use of their opportunities.

General Remarks on the Symptoms of Dropsy.—In this place, it is my intention to give a slight sketch of the general symptoms which accompany dropsical complaints, reserving those which are peculiar to effusions in the thorax, abdomen, &c. until I come to treat of the particular forms of dropsy. The general symptoms are, a sallow complexion; dry skin; costive bowels; urine in small quantity, and of a high colour, in some cases coagulable by heat, and of low specific gravity; *muscular* emaciation; general debility; febrile symptoms, particularly towards night; want of appetite and indigestion, and sometimes nausea, vomiting, and diarrhœa. In some cases there are cough, difficulty of breathing, particularly in the horizontal posture, and occasionally expectoration. Sometimes there are a sense of suffocation, violent palpitation, and startings during sleep. The pulse is sometimes slow, at others quick, often irregular and intermitting; the tongue is sometimes furred and moist, at others parched and red, and sometimes it is preternaturally clean and florid. Occasionally, erysipelatous inflammation takes place, or the skin cracks, allowing a watery fluid to ooze out.

The duration of dropsy is very various, and depends almost entirely upon the nature of the disease, by which the effusion is caused.

General Remarks on the treatment of Dropsy.—Among the remedies employed in dropsy, the consideration of bloodletting is the most important; because it is indispensably necessary in some cases, while its employment is doubtful in others, and would be decidedly injurious in many. In the treatment of dropsy, many insurmountable obstacles are experienced in investigating and deciding what organ or organs are affected; besides which, sudden changes take place from the occurrence of inflammatory action in other parts, so that it requires no ordinary share of pathological and practical know-

ledge to act decisively, and yet cautiously. Dr Cullen gives three general indications of cure :—

1. The removing of the remote causes of the disease.

2. The evacuation of the serous fluid already collected in the cellular texture.

3. The restoring of the tone of the system, the loss of which may be considered in many cases as the proximate cause of the disease.

The endeavour to fulfil these indications, has, I apprehend, been the cause of much embarrassment to practitioners, and increased distress to patients. With respect to the first, practitioners will in many instances be found contending with mere shadows, and wasting much valuable time, because the disease may exist after the removal of its cause, or be even incurable, and the patient may yet be enabled to live a considerable number of years with tolerable comfort, following his business, provided the attention of the practitioner be directed to certain consequences, the occurrence of which is constantly to be dreaded. According to Dr Bright, "the two great sources of casual danger will be found in inflammatory affections, more particularly of the serous, sometimes of the mucous membranes, and in the effusion of blood or serum into the brain, and the consequent occurrence of apoplexy. Of these secondary or casual dangers, we have illustrative examples in many of the cases which have been stated above. Out of the seventeen dissections, we have found ten or eleven betraying inflammation of the pleura, generally old, but sometimes of recent date. We have found three instances in which the patients had suffered decided attacks of inflammation in the pericardium shortly before death, and in two of these cases, we had proof of some previous affection of the same kind. In one only were the signs of inflammation in the peritoneum well marked. Five out of the seventeen had altogether escaped inflammatory affections of the serous membranes, and one of these died with inflammation of the epiglottis. With regard to the cerebral affections coming on in the progress of these diseases, we find, in the cases above related, both apoplexy and epilepsy to have occurred; and a very well-marked

instance of the former was witnessed in a patient in the clinical ward in 1825."

The second indication, "evacuating the serous fluid," may be fulfilled in two ways. 1. By evacuating, by means of a surgical operation, the effused fluid. 2. By exciting the action of the absorbents, and producing an increased discharge from some of the excretory organs. These are no doubt great objects, if they could be attained; but we must always recollect that the dropsy is a mere symptom or consequence of functional or organic disease in some other organ, and unless that be cured, much mischief may be done, not only by wasting precious time, but by exhibiting medicines which are sometimes manifestly injurious to the patient.

Against the third indication—"restoring the tone of the system, the loss of which may be considered in many cases as the proximate cause of the disease,"—I have to enter a strong protest, from the injurious consequences which I have seen result from attending to it in practice. It accords, however, with Dr Cullen's notion, that the disease is owing to a general debility, producing a laxity or want of tone in the exhalents.

There is a time that we may stimulate and give tonics with advantage, when we have conquered the cause of the disease perhaps by debilitating remedies, and when the strength must be supported. It will be sufficient for me again to refer to the cases and dissections of Dr Bright, to shew the dangers which must often arise from following such treatment, except under the above restrictions. I have met with several medical men in extensive practice, whose invariable method of treating dropsy, is by giving digitalis, and large quantities of strong gin-toddy, containing an English pint, and sometimes even two of the spirit, in the course of twenty-four hours. I would implore these individuals to peruse with care the works of Drs Blackall and Bright, who have given us additional guides in the treatment of dropsy, by shewing the inflammatory diathesis which generally prevails, and by directing our attention to the coagulability of the urine, as indicating an affection of the kidneys, which affection almost always terminates in inflammatory action, to the destruction of the organ.

It is believed by many, and it certainly appears probable, that bleeding and the antiphlogistic regimen, within certain limits, act upon the absorbent system, by creating greater activity. Blood-letting, therefore, as already observed, stands the foremost remedy; but in using it, we must be guided by the age, strength, habits, and peculiarity of constitution of the individual,—the duration of the disease,—and also by the state of the pulse. Should the condition of the pulse and other circumstances contra-indicate venæsection, local bleedings may be had recourse to, either by means of cupping-glasses or leeches, and are peculiarly serviceable when applied to the loins in cases of diseased liver and kidneys. The propriety of repeating the abstraction of blood, may be discovered from the state of the blood itself, the strength of the pulse, and the relief afforded. The rash conduct of some practitioners in taking away large quantities of blood in all cases, is to be deprecated, because, although it may be successful in some instances of dropsy, it will be found to be very injurious and even fatal in a majority; and it is greatly to be feared that the indiscriminate employment of general bleeding in this disease has too frequently led to the adoption of the opposite mode of practice already noticed.

I have seen several cases in which chronic bronchitis existed with dropsy, whether as cause or effect I could not in some instances discover; but in all, great and permanent advantage was obtained from venæsection.

Purgatives stand next in importance to blood-letting. In all cases it is necessary to keep the bowels open; and, in many, we are obliged to depend on the use of free purgation, when the constitution is not sufficiently strong to stand the effects of venæsection; consequently, we find that powerful doses of jalap, gamboge, scammony, and elaterium, have been highly recommended by different authors. I have heard many practitioners declare that they have *never failed* in curing dropsy by elaterium; but individuals who make such assertions, must either have been singularly fortunate in meeting with slight cases only, not produced or accompanied by organic disease, or they must have been short-sighted or forgetful. In using this class of remedies, practitioners should recollect, that

violent and long-continued purging is fully as debilitating as venæsection; and, in point of fact, I have seen several individuals die under the action of purgatives, to all appearance from syncope.

I had the satisfaction lately of curing a case of ascites of some standing. The disease came on after child-bed, and the abdomen was very much distended, when the woman was sent from a distance for my advice. After exploring the chest, and ascertaining that all the organs were sound, I had confident expectation of curing her without tapping. There was no fever or pain, neither was the urine coagulable. She was first put under the action of a combination of calomel, squills, and digitalis, and kept under it for several weeks, without much amendment. Afterwards, powerful doses of elaterium were employed, and with the happiest effects. The woman returned home perfectly cured; I have since heard of her, and she continues well.

In the case of Evans, who recovered, Dr Bright gave first half-a-grain of the extract of elaterium every six hours, and afterwards one grain twice a-day, and with considerable benefit; but he was subsequently bled, and took several doses of opium. Dr Bright seems to prefer, however, the saline laxatives, which unite a certain degree of diuretic power, and amongst these, he found the super-tartrate of potash the most efficacious; indeed, it will be seen, on perusing the cases, that in several he trusted almost entirely to this remedy.

Diuretics have been long used in *all* cases of dropsical effusion, apparently with the simple intention of "pumping the water out of the system;" but I am convinced, that the active and indiscriminate use of these, as well as of drastic purgatives, will become less general as our pathological information increases. It appears to me that little benefit will be derived in many cases from the use of diuretics, even should the effused fluid be absorbed, if the original disease, whether it be of the heart and large blood-vessels, the liver or the kidneys, remain; and, indeed, in several lingering instances, which I have treated by these means, so far successfully as to get rid of the dropsical effusions, the symptoms afterwards became more urgent, and the disease more active.

The principal diuretics employed are squills; foxglove; acetate of potash; supertartrate of potash; infusion of fresh broom; cantharides; oil of turpentine; and balsam of copaiva. Of these, the squills and balsam of copaiva I believe to be the best; Dr Bright prefers the former, which he finds to act best in combination with hyosciamus, or when a grain of opium has been at the same time taken once or twice a-day; indeed, he says that he considers these two substances to form an important part of the treatment, by diminishing the irritation of the kidneys, as well as by allaying the general disturbance.

The propriety of tapping is very questionable, unless we are convinced there is no incurable organic disease; but I shall return to the consideration of this point, when treating of hydrothorax and ascites.

Scarifications are frequently practised in anasarca, and occasionally with advantage; but I believe it will in general be only temporary; and in many constitutions, inflammation, ulceration of a bad character, and even mortification, sometimes ensue.

Emetics were formerly in great repute in the treatment of dropsies, owing to the high encomiums passed upon them by the illustrious Sydenham, who says that antimonial emetics do not seem merely to evacuate the stomach, but open some passages from the cavity of the abdomen into the intestinal canal. Whatever may be the cause I cannot tell, but they seem now to be very much laid aside; there can be no doubt, however, that emetics, either of antimony or copper, do promote absorption in a wonderful manner, in induration of the testicle; and although these good effects have been much overrated by Sydenham, still perhaps they have been abandoned by practitioners of the present day without sufficient examination.

Mercury has been often used in dropsy; and there can be no doubt that it has been frequently serviceable. It would be a matter, however, of the first practical importance, if we could determine precisely the cases in which it may be expected to prove beneficial, in order to prevent the loss of much valuable time. We now, by means of auscultation and percussion, possess advantages which those who lived before us did not

enjoy, and almost any ear will be able to detect disease of the heart or chronic bronchitis—very frequent causes of dropsy, —in which the action of mercury will certainly not be so serviceable as if the liver were diseased. Dr Bright has shewn that dropsies frequently depend upon disease of the kidneys, in many cases of which mercury may prove decidedly injurious, unless preceded or accompanied by general or local bleeding. In many instances it will be found serviceable, after bleeding, to prescribe a combination of calomel, squills, and digitalis, in the form of pill, to be repeated in proper doses three or four times a-day. But Dr Bright assures us, that the cases which have proved most successful in his own practice, have generally been those in which the use of mercury has been rigidly abstained from; and he further states, that in some cases he has seen the good effects of other remedies entirely interrupted by the mercurial action; and he has likewise seen several instances, in which the cure, when mercurials have formed part of the plan, has been protracted to a great length. (Page 73.)

Poultices made of the *male fern* applied to the abdomen, have been used in several cases of dropsy by Dr Shortt, in the Infirmary of Edinburgh, with a view of promoting an increased flow of urine, and, it is stated, with remarkably good effects. I have tried this remedy in two cases, but without success, although every care was taken to procure the plant fresh.

Blisters, and contra-irritation produced by other means, have been occasionally found of great service in dropsies, produced by whatever cause. They merely act by translating inflammatory action from an internal organ to the skin, and not, as was formerly imagined, even by Dr Blackall, by evacuating the dropsical fluid. I have often seen the best effects from their judicious employment, and they appear to be more particularly useful when applied to the loins after topical bleeding in cases of diseased kidney. Formerly, when used for the purpose of drawing off the dropsical fluid, they were applied to the extremities, and frequently caused sloughing ulcers.

Great difference of opinion exists as to the quantity of fluid which ought to be allowed to a patient labouring under

dropsy; some allow as much drink as the patient feels inclined to take—others, none at all; but I believe that a medium plan is the best to follow. If the patient be thirsty, and is interdicted from taking a drink, additional suffering, and many a sleepless night, is the consequence; whereas, if he be encouraged to drink, he may subsequently experience great uneasiness from the over-distended state of the stomach. In practice, we often take advantage of the thirst, to introduce a sufficient quantity of the supertartrate of potash into the system. I believe that some who interdict liquids, do so for no better reason, than because it has been stated by authors that dropsical complaints have been produced by drinking a large quantity of fluid!

I shall now proceed to notice three varieties of dropsy,—viz. anasarca; hydrothorax; ascites.

Anasarca.

The term anasarca implies a preternatural collection of serous fluid in the cellular texture; and when partial, it is often called œdema. This form of dropsy generally comes on slowly, unless it succeed to scarlet fever, when perhaps the whole body is observed to become suddenly affected; it also occurs occasionally after taking a large drink of cold fluid when the body is much heated.

In general, the feet are at first observed to be affected in the evening, and to pit on pressure; the swelling gradually ascends higher, and sometimes distends the cellular tissue of the whole body. The urine is always scanty and high-coloured; the bowels are generally tardy, although now and then they are in a contrary state. The general symptoms, as well as the progress and termination of the disease, vary according to the organ affected. Sometimes there is considerable fever, and dry skin; and the heat of the parts affected is sometimes increased, although in general it is diminished, and occasionally mortification takes place.

Treatment of Anasarca.—This must be conducted upon the principles already so fully mentioned.

Hydrothorax.

Hydrothorax may exist on both sides of the chest, or on one only, and may be complicated or not with effusion into the abdomen, and also with general œdema. In the commencement of hydrothorax, the symptoms which particularly indicate this form of the disease, are in general so slight as not to attract much attention, and may continue so for a considerable period, although other circumstances denoting bad health may exist. The general symptoms are those which accompany all forms of dropsical affection. Those which are peculiar to hydrothorax, are now to be mentioned. At first, slight difficulty of breathing is experienced, which is increased during exercise, but more particularly when the body is placed in the horizontal posture, and is generally attended by a dry and annoying cough. The feet are observed to be swollen towards the evening; the extremities become more and more œdematous as the disease advances, when the patient frequently complains of palpitation, increased dyspnœa, which is worse at one time than at another, sometimes producing a dread of suffocation, particularly during the night. As the disease goes on to a fatal termination, the patient can never lie down, or even recline backwards, or go to sleep in any position, without starting up suddenly with increased dyspnœa. The surface shews signs of impeded circulation; the cheeks and lips in particular become livid or deadly pale; and the pulse, if it have not hitherto been irregular and intermittent, now becomes so. At length the patient dies from suffocation and exhaustion, or becomes comatose. The progress of the disease depends much upon the organic lesion, and more particularly upon the disease affecting both cavities of the pleura, or one only; in which latter case, its progress will be much slower, the symptoms much slighter, and the patient will be able to repose in the horizontal posture, but on one side only. Corvisart has observed, that, in the cases where hydrothorax exists on one side, œdema also affects the corresponding lower extremity.

Stethoscopic Signs.—Before the discovery of auscultation, practitioners were always in doubt as to the existence of fluid

in the chest; now, however, by applying the ear to the chest, and by percussion, *in addition* to the other symptoms, the existence of hydrothorax can be detected with the greatest certainty. In hydrothorax percussion produces a dull sound; and the respiratory murmur is either not heard, or it is very obscure, except along the vertebral column, where it is heard more distinctly. The appearance and shape of the chest also afford us additional evidence, but they cannot be depended on without having recourse to auscultation and percussion: the thorax will be observed to be more rounded than natural, and the intercostal spaces increased.

Treatment of Hydrothorax.—The plan of treatment must depend upon the cause of the effusion, which may be an organic lesion of the heart or lungs, or inflammation of the pleura; and these are to be managed upon principles already laid down in the General Remarks on dropsical effusions. In cases of threatened suffocation, or even when the dyspnœa becomes very severe, it will be proper in many cases to draw off the water; but we must be careful not to hold out the prospect of a cure from such an operation, although we may safely promise considerable temporary relief. We may nevertheless entertain some hope, if the effusion be confined to the chest, and have been produced by inflammation of the pleura, uncomplicated with disease either of the heart or lungs, and if the patient's strength be good. When treating of chronic pleurisy in the first volume of this work, a successful case of empyema is noticed, where the operation of *paracentesis thoracis* was performed by Dr Pitcairn of Edinburgh; and there are many others on record.

Ascites.

Ascites, or dropsical effusion within the abdomen, may exist either alone, or complicated with hydrothorax and general anasarca. The symptoms, as in the other forms of dropsy, vary according to the nature of the cause. On some occasions, the disease is ushered in with well-marked symptoms, such as fever, pain in the loins or region of the liver, and corresponding disorder of all the functions of the body, announced by thirst, loss of appetite, sometimes nausea and vomiting, foul

tongue, constipated state of bowels, scanty high-coloured urine, dry parched skin, &c. After these symptoms have continued for some days, the abdomen will be observed distended; upon percussion it will yield a dull sound, and fluctuation will be felt, unless the quantity of the effusion be small, or the intestines tympanitic.

On other occasions, the disease goes on insidiously, the enlargement of the abdomen being often for a considerable time attributed to corpulency; and the other symptoms, such as restless nights, and loss of appetite, to want of exercise and debility. At length the secretion of urine becomes almost suppressed, when symptoms indicating a cerebral affection sometimes take place, and create alarm; or along with scanty urine, the legs become œdematous, and excite for the first time a correct notion as to the nature of the patient's complaints.

In all cases of ascites, the most careful examination should be made respecting the state of the thorax, as it is much more likely we shall be successful in the treatment of a case which is unconnected with any organic affection of the contents of the thorax, or with effusion into its cavities. We must have recourse therefore to auscultation and percussion, as we cannot judge with any degree of certainty from the dyspnœa or the posture of the patient. In ascites there may be great dyspnœa from hurried circulation, or from the effusion in the abdomen encroaching on the thorax, from which causes also there may be inability to lie in the horizontal posture.

In females we may have considerable difficulty in determining between ascites and the diseases of the ovaria, in which there is considerable enlargement; and when treating of diseases of the uterus, it was stated how difficult it occasionally is to determine the existence of fluid in the abdomen.

Treatment of Ascites.—This must depend, as in other dropsies, upon the organ affected, and upon the extent and nature of the disease. With respect to tapping, it should be avoided as long as possible. We should be guided chiefly by the sufferings produced by the distention, as well as by the difficulty of breathing. I have been frequently on the point of

directing the operation to be performed, when absorption commenced, and afterwards went on rapidly; and, on the other hand, I never once had occasion to regret delay. The same objection to the operation may be made, as was formerly urged, when considering ovarian diseases, that when once we begin to tap, we cannot leave off, as the effusion subsequently takes place with greater rapidity. The successful case of ascites cured by elaterium, noticed at p. 539. was sent to Edinburgh expressly for the operation. When the operation is finally determined upon, care should be taken, in my humble opinion, to have the patient under the influence of diuretics for some days before it is performed. Contra-irritation has appeared to me to be more serviceable in ascites than in some other forms of dropsy.

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